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ABSTRACT

This study is an outgrowth of recommendations made in a report issued by the Council on Library and Information Resources (CLIR) in 2001 (Nichols and Smith 2001). The report made three broad recommendations for addressing print preservation: (1) Establish regional repositories to house and provide proper treatment of low-use print matter drawn from various collections; (2) Investigate the establishment of archival repositories that would retain a "last, best copy" of American imprints; (3) Build interinstitutional networks for information sharing about the status of artifacts and delegation of responsibilities for caring for them. This report examined how, and to what degree, various consortia and university systems are using repositories to move beyond the immediate goal of providing cost-effective collection storage and delivery and to be-gin to cooperatively manage and preserve their research collections. The report also suggests which practices, policies, and programs best foster the equitable sharing of the costs of collections care and to identify which practices and organizational and financial structures best support the integration of cooperative collection development and preservation efforts. Finally, it explores the extent to which the repositories studied represent an emerging architecture of broader cooperation, whereby the participating libraries might move beyond serving their regional communities and participate in a national network for cooperative preservation. A further purpose of this study was to appraise prospects for further rationalization of libraries' efforts to manage the growing print corpus in institutions across the nation. Appendixes include four tables and brief overviews of the Australian National Collections Storage Program, national collections planning in the United Kingdom, and a Collaborative Academic Library Store for Scotland; and information on methodology and sources for the study. (Contains 13 references.) (AEF)

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Developing Print Repositories:

Models for Shared Preservation and Access

by Bernard F. Reilly, Jr.

with research and analysis by Barbara DesRosiers

Center for Research Libraries

June 2003

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MANAGING ECONOMIC CHALLENGES

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by Bernard F. Reilly, Jr.

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Washington, D.C.

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Foreword

For centuries, printed texts have been the staple of the scholarly and teaching professions. Committed to providing access to physical copies of texts to their local patrons, libraries have collected these texts in abundance and in redundancy.

With the introduction of duplicating technologies, interlibrary loan, and, more recently, networked digital access to texts, the need for libraries to collect and own volumes of print to provide access has diminished. At the same time, the output of publishers has grown enormously. The changing economics of purchasing, serving, and storing has resulted in a complex landscape of increasingly homogenized collections—one in which texts are also often purchased in several formats simultaneously. It has also led to a modest boom in the construction of secondary storage facilities that are needed to accommodate the growing volume of hard copies.

As librarians survey their burgeoning holdings, they can readily see that their retrospective collections are seldom used. This does not mean, however, that these materials have lost their value for research and teaching. How can libraries best manage these collections? More specifically, how can they do so in a way that increases the purchasing power of stagnant or shrinking collections budgets? What innovative approaches to collection development and management can they use? This report presents information about cooperative collection storage and management initiatives that can shape and support new strategies for the management of print collections.

In 1998, the Council on Library and Information Resources (CLIR) convened a task force of senior humanities and social science faculty to look at the role of artifactual collections in libraries that are increasingly meeting their patrons' needs through digital delivery of information resources. The task force examined faculty members' need for information resources and libraries' ability to secure adequate financial resources to meet that need. The task force published its findings in a report, *The Evidence in Hand: Report of the Task Force on the Artifact in Library Collections*, in 2001.

The task force recommendations were clear, and their implications daunting: libraries should keep up with current collecting demands, achieve greater efficiencies of storing and serving little-used materials, and tighten the national safety net for the preservation of research collections. They should achieve this vision primarily through cooperative collection, storage, and management of information resources. The task force called for the planned growth of cooperatively managed repositories for little-used materials. These central facilities should be backed by a number of smaller repositories to serve the community at large as archival reposito-

ries of record for American imprints. Such a system, the task force believed, would ensure preservation as the key to safeguarding the intellectual and cultural heritage of the country.

These recommendations were not based on the unrealistic expectation that libraries would then be able to preserve everything that may be of value for scholarship. A sober look at the pressures on libraries and their budgets led task force members to conclude that libraries could no longer aspire to collect universally, or even as deeply and broadly as they had in the past. Task force members also realized that secondary storage is an excellent response to space shortages incurred by growing collections. Finally, if the facilities were optimized for preservation of physical collections, this would greatly benefit collections and, by extension, their users, by prolonging the useful life of imprints.

Implementing these recommendations requires further defining what should go into these repositories; how they are to be organized, governed, and sustained; and how collaborations among libraries and between libraries and scholars can be nurtured. The task force recommended, for example, that "such repositories might be organized along chronological lines, with institutions specializing in certain periods; along disciplinary or linguistic lines; or along geographical (that is, physical location) lines for consortial use" (Nichols and Smith 2001, 73). As might be expected, the scholars on the task force were looking for repositories that could serve as "scholars' archives," to be organized in a way that maximized the use of specialized materials by aggregating them according to discipline or language. While this approach makes sense from a researcher's point of view, it does not address the pressing problem of cost-effective management of little-used collections. From the libraries' point of view, organizing repositories based on geographical proximity, rather than chronologically or by discipline, presents the greatest opportunities in the near-term. Direct stewards of collections are best positioned to address the rationalization of cooperative storage, building on existing shared repositories to develop opportunities for shared collection management and, simultaneously and over time, creating repositories of archival collections that are meant to be used only as a last resort.

To build on the recommendations of the task force, CLIR commissioned the Center for Research Libraries (CRL) to investigate existing models of repositories organized along geographical lines for consortial use as well as models of some archival repositories. This report is the result of that study. Authors Bernard Reilly and Barbara DesRosiers looked broadly at existing shared repositories. Their report includes information about both regional repositories and those that collect on behalf of an entire nation. While carefully documenting the growth and achievements of such facilities, Reilly and DesRosiers also point to the promises they hold for new collaborative solutions to problems that libraries share but are used to grappling with on their own. Seeing such repositories as tools or sites for new forms of cooperation, the authors challenge us to think about how these cooperative storage arrangements might do much more than solve problems caused by shortage of real estate on campus.

The authors also document some critical features of two other types of repositories. One type includes repositories that have developed a concentration of rare or little-used materials in specific collecting areas. The second

type collects and preserves "last-copy" imprints (that is, items that are rare and possibly unique) and serves such materials under highly controlled protocols or, in some cases, does not serve them at all. There are few such repositories of record in place to study, and the challenges of building and sustaining them are different from those associated with repositories that allow some level of access. Nonetheless, the requirements of building and sustaining such fail-safe collections can be related to or inferred from the experiences of shared repositories. In order to fulfill the crucial societal roles of last-copy or "heritage-copy" collections, there should be an agreement, among other things, about the following:

- core attributes of such copies
- protocols governing management and preservation
- protocols governing access
- how to record such copies
- how to make such information widely accessible

The authors discuss several international models, as well as the single active model in the United States, the American Antiquarian Society (AAS). Interestingly, the AAS also serves as a "scholars' archive"—one whose collections are of depth and breadth in a specific set of genres, languages, and time periods (in this case, early American imprints).

All special collections libraries, and especially those that are members of the Independent Research Libraries Association, could be described as "scholars' archives." Outside of the independent research libraries, it is not uncommon for research centers to be set up in relationship to existing collections. The Woodrow Wilson Center in Washington, D.C., uses the resources of the Library of Congress. The National Humanities Center uses a network of libraries in the Research Triangle area of North Carolina. Both the New York Public Library and the Library of Congress have recently established on-site research centers specifically to bring in scholars to use their collections. AAS alone, however, has also declared its mission to be a repository of last resort. It has in place a plan for acquiring a comprehensive set of items and is committed to preserving a copy of each item in perpetuity on behalf of a larger community.

Another type of last-copy or archival collection is being developed by JSTOR, the journal archiving enterprise that creates and distributes digital surrogates of print journals in specific academic fields. JSTOR is trying to collect a full set of hard copies of each of the journals it makes available online. It will not make these hard copies available for use; instead, they will constitute a true archival back-up collection that will be used only for disaster recovery. JSTOR's intention is to create the ultimate insurance against loss. Though plans are very much in the early phases, JSTOR is even contemplating maintaining more than one such back-up archive of hard copies to further reduce the risk of catastrophic loss.

It is interesting that JSTOR, an independent third-party provider of library resources, should be the first to plan for building such fail-safe repositories. Preliminary discussions among librarians about creating a network of such repositories usually end in general agreement that libraries should be doing something like this themselves, but so far they have backed away from actually doing so. There are many reasons for this reluctance; none-

theless, it is imperative that we understand the role that trust plays in the development—or lack of development—of shared management of collections in any repository. JSTOR is building a back-up repository system to build trust in the community of libraries it serves; its goal is to be a fully trustworthy archive. Libraries, in contrast, have been unable to build shared repositories without such trust already in place among the potential partners. As Reilly and DesRosiers point out, a "strong interinstitutional culture" is necessary for the kind of long-term commitments that can achieve scales of economy and improved stewardship. Repositories that go beyond the mere sharing of storage space to the sharing of management and access—in some cases decoupling *ownership* from *governance*—are those that build on previous histories of collaboration and interdependence. (The University of California and Five-College Depository are the chief examples discussed in this report.)

A crucial factor in building trust among members of a community is transparency. JSTOR has made a point to inform the community about what it does, how it operates, and why it reaches the decisions about access and preservation that it does. The University of California and the Five-College Depository have likewise been open in sharing their plans and experiences. As the library community develops new models of stewardship and service, information sharing will be a keystone in the building and maintaining of trust. CLIR is grateful to those who so graciously agreed to open their doors to the investigators from CRL, took time to provide detailed information, and encouraged us in the publication of this report. By doing so, they demonstrate their own commitment to our shared goal of responsible cultural stewardship.

Abby Smith
Director of Programs, CLIR

I. Introduction: Purpose of the Study

This study is an outgrowth of recommendations made in *The Evidence in Hand*, a report issued by the Council on Library and Information Resources (CLIR) in 2001 (Nichols and Smith 2001). Among other things, that report addressed the vast inequity between the cost of preserving the print library materials that are most important to the historical record and the resources available to cover those costs. The report made three broad recommendations for addressing print preservation:

1. Establish regional repositories to house and provide proper treatment of low-use print matter drawn from various collections.
2. Investigate the establishment of archival repositories that would retain a "last, best copy" of American imprints.
3. Build interinstitutional networks for information sharing about the status of artifacts and delegation of responsibilities for caring for them.

During the past two decades, several repositories have been established in the United States to provide storage space for library materials. Other facilities are being planned. The repositories are largely the products of interinstitutional efforts undertaken by public and private institutions of higher education.[1] They were created to accommodate low-use, primarily paper-based materials that do not have to be readily available for consultation in campus libraries. Such materials tend to be those used for advanced research in the humanities and social sciences.

These interinstitutional repositories differ in function, if not in form, from the high-density "shelving" facilities developed off-site by major university libraries such as Harvard and the University of

[1] For purposes of this report we chose to use the term "repository," rather than "depository," to refer to the regional facilities for storage of library collections. The latter term seems to be somewhat ambiguous in usage. In one context ("book depositories"), it is applied to the storage facilities created by state and private consortia that hold but do not own the materials placed there. In the legal sense ("Federal Depository Library Program") it is applied to libraries officially designated by governmental organizations such as the United Nations and the U.S. Government Printing Office as recipients of official publications and documents.

Texas.[2] Many of the regional repositories described in this report are more than cost-effective solutions to collections storage; they are a means through which multiple institutions work together and pool resources to manage significant portions of their holdings. They offer a shared space in which collections deposited by different libraries are maintained under a common regime: they are included in a common inventory-control system, subjected to common standards for bar codes and labeling, and shelved in standardized units. Their circulation is managed by a single organization.

The facilities support a certain degree of interdependence and cooperation among the participating libraries with respect to the preservation of artifactual holdings at a regional or system level. Joining collections under this common regime promotes a tendency to view the aggregated holdings as a single, shared corpus of research materials. The participating libraries exploit this common asset through interlibrary loan (ILL) and document delivery (DD). Some go a step further in actively managing the corpus as a whole; for example, they work to reduce redundancy and increase the diversity of holdings by systematizing, and coordinating responsibilities for, additions to the corpus. Other libraries seek to "rationalize," or achieve economies in managing, their collective print holdings by aggregating "last-copies" from among the participating institutions' individual collections. Such collections consist of single copies of particular published works or series designated to be retained by the group after duplicates have been eliminated. Still other libraries use their individual holdings to assemble "collections of record," that is, comprehensive or near-comprehensive holdings of works on particular subjects or of particular types of materials, such as trade catalogs. Such efforts enable libraries to manage the aggregated knowledge resources of the repository in a strategic way.

In preparing this report, we were interested primarily in the repositories as sites, or tools, of interlibrary cooperation. We wanted to determine how, and to what degree, various consortia and university systems are using repositories to move beyond the immediate goal of providing cost-effective collection storage and delivery and to begin to cooperatively manage and preserve their research collections. This report also suggests which practices, policies, and programs best foster the equitable sharing of the costs of collections care and to identify which practices and organizational and financial structures best support the integration of cooperative collection development and preservation efforts.

Finally, we wanted to explore the extent to which the repositories studied represent an emerging architecture of broader cooperation, whereby the participating libraries might move beyond serving their regional communities and participate in a national network for cooperative preservation.

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[2] Nitecki and Kendrick 2001 provides a wealth of information on the design, economics, and operational logistics of high-density storage facilities.

The following repositories were surveyed for this study:

- The Northern Regional Library Facility (NRLF), Richmond, CA. One of two state-funded regional repositories in California, the NRLF serves the University of California (UC) Berkeley, Santa Cruz, San Francisco, Davis, and, beginning in 2004, Merced.
- Southern Regional Library Facility (SRLF), Los Angeles, CA. The second of two state-funded regional repositories in California, the SRLF serves the state universities at Los Angeles, San Diego, Irvine, Santa Barbara, and Riverside.
- Five-College Library Depository, Amherst, MA. The repository serves four liberal arts colleges (Amherst, Hampshire, Mount Holyoke, and Smith) and the University of Massachusetts at Amherst.
- CONStor, Newark, OH. CONStor was formed under the aegis of the Five Colleges of Ohio, Inc., a consortium consisting of the College of Wooster, Denison University, Kenyon College, Ohio Wesleyan University, and Oberlin College.
- Washington Research Libraries Consortium (WRLC), Upper Marlboro, MD. The consortium operates a repository that serves eight Washington, DC-area institutions: American, Catholic, Gallaudet, George Mason, George Washington, Georgetown, and Marymount Universities, and the University of the District of Columbia.
- Research Collections Access and Preservation Consortium (ReCAP), Plainsboro, NJ. This consortium consists of Columbia University, the New York Public Library (NYPL), and Princeton University.
- Southwest Ohio Regional Depository (SWORD), Middletown, OH. One of five state-funded regional repositories in Ohio, SWORD serves the University of Miami, Wright State University, the University of Cincinnati, and Central State University.
- Library Service Center (LSC), Durham, NC. Created in 2001 by Duke University, the repository provides off-site storage for the seven libraries of the Perkins Library system and for the separate libraries of its business, divinity, law, and medical schools. The facility was intended by its planners at Duke to also provide storage and related services for the other universities of North Carolina's Research Triangle. But to date only the University of North Carolina at Chapel Hill occupies space there. Hence, as an inter-institutional repository the LSC is still emerging.

Cornell University is studying the viability of establishing an off-site storage facility on a similar model. The facility would accommodate the growth of Cornell library collections and would also serve smaller colleges and libraries in the region.[3]

[3] Development of a cooperative storage facility is one of the possible Cornell initiatives examined under the Andrew W. Mellon-funded project, *Models for Academic Support: Restructuring Organization for Cost-Effective Information Services*. The project prospectus is posted on the Web at http://www.library.cornell.edu/MAS/.

1.1 Related National-Level Efforts

A further purpose of this study was to appraise prospects for further rationalization of libraries' efforts to manage the growing print corpus in institutions across the nation. The question is this: Could these regional or statewide efforts work more closely to form the basis for a national network of cooperative library preservation? The prospects for such cooperation depend upon the framework for preservation and the retention of library collections in place beyond the regional and system levels—that is, at the national level.

This supra-regional framework consists of the Library of Congress (LC), a national library that to some extent fulfills a national repository function, and other repositories, notably the Center for Research Libraries (CRL) and the American Antiquarian Society (AAS), that assemble and maintain comprehensive or near-comprehensive holdings in major areas of interest. American research libraries depend on these institutions to preserve and make available lesser-used materials that support research and maintenance of the cultural record.

Like the AAS, other independent research libraries and large urban historical libraries—such as those of the New-York Historical Society and the Chicago Historical Society—hold collections of record in certain areas of interest. Unlike its peers, however, the AAS has assumed responsibility for the comprehensive preservation of materials published in the United States before 1877, thus formally accepting primary stewardship of an important portion of the printed corpus. The CRL, begun as a regional repository of an earlier generation that served 10 midwestern universities, has grown to be a broad consortium of North American research libraries that maintains and continues to develop a shared corpus of research materials.

Ongoing fulfillment of this "fallback" function at the national level permits individual research libraries, university libraries, and the regional repositories that these institutes form to tailor their collection-development, preservation, and access policies to local or immediate needs.

In considering the prospects for national-level coordination in the United States, it is instructive to examine major efforts undertaken in other parts of the world. The National Repository Library of Finland is an example of a traditional fallback library that serves a nation's libraries. Most advanced among the newer models is the CARM Centre in Australia, which is operated by Cooperative Action by Victorian Academic Libraries (CAVAL). There are also emerging efforts in the United Kingdom, promoted by the Research Libraries Support Group and the Scottish Confederation of University and Research Libraries. (See Appendices 6-7.)

1.2 Limitations of the Study

The picture of regional repositories that appears in this study should be considered a snapshot rather than an enduring portrait. Some of the repositories, such as ReCAP and LSC, have been in operation for

less than two years. Their volume-counts and many of their policies are still in flux. Because many of the repositories are new, their average operating costs are skewed, in some cases by the intensive intake operations associated with creation of the facility. The pace of intake can be artificially accelerated at this phase in a repository's life cycle, owing to pressures to rapidly transfer pre-selected materials from participating libraries' on-campus storage space or from other remote storage. It is unclear whether selection and segregation of materials for storage, extremely labor-intensive processes, will continue to be as rapid as it has been to date. As a result, it is difficult to gauge the relative economic or strategic effectiveness of the individual repositories at this point.

Regional repositories are designed to manage a subset, albeit a very important subset, of the full range of library materials—that is, materials receiving infrequent use or no use at all. These items tend to be older materials that are used chiefly for research in the humanities and social sciences. Many of them are in languages other than English. Solutions and regimes devised to manage these collections are necessarily different than those suited to heavily used, core collection materials. Repository collections, for instance, tend to be under relatively loose bibliographic control, some having only container or collection-level records. Many also tend to require special handling, owing to age and fragility. On the other hand, access to them is required only irregularly. Hence the applicability of the cooperative collective management regimes instituted by the repositories is worthy of further study.

2. U.S. Regional Repositories: General Characteristics and Features

Each of the repositories included in this study was created in response to a shortage of storage space. All were seen as cost-effective, long-range means of satisfying individual universities' and colleges' need for economical and environmentally sound space to accommodate growing library collections and programs. Expanding or building additional on-campus storage was not possible for financial reasons, or because of lack of suitable on-campus land for construction, or both. The growth of undergraduate enrollments since the 1970s, and accompanying escalating demand for residential, cultural, pedagogical, laboratory, and recreational spaces on campus, made the idea of setting aside prime campus property for such inert activities as collections storage unappealing. At urban universities such as Columbia and the University of Southern California, there was simply no campus space on which to build.

In many cases, the repositories supplanted inadequate or interim storage space on- or off-campus. UC Berkeley moved 1.25 million volumes from an off-campus storage facility as the initial deposit to the NRLF. In other instances, the universities had been maintaining off-campus storage facilities in various locations. This practice was costly and provided only temporary relief for growing collections.

Before joining with the NYPL and Princeton University to create ReCAP, Columbia University had more than one million volumes stored in three sites in Manhattan and the Bronx. ReCAP provided a single place to bring together materials that the NYPL had stored in several facilities in New York City.

All the libraries of the Five Colleges, Inc., faced a shortage of collections storage space. The building that became the Five Colleges repository had been purchased by Amherst College for general storage purposes. It was adapted for use for the college's library collection when on-campus collections space ran short.

The need for new library storage was often affected by other developments in the university. At Duke, for example, the central university libraries had reached capacity in their on-campus collections storage and, at the same time, were launching an ambitious program of renovation and expansion that would require new swing space. Creation of the LSC was to be the first phase in a series of massive renovation and expansion projects.

Cooperative action was often prompted by the simultaneous recognition of a shared need for storage space on the part of state systems or existing consortia. In most cases, the repositories were the response of governing authorities to a system-wide space crisis that had been signaled by multiple requests for capital funds for new library buildings or expansions.

Such was the case in California. During the 1970s, recognition of a shortfall of space for storage of university library collections prompted the president of the University of California to seek a system-wide solution. Plans for the SRLF and NRLF originated with the so-called Salmon Plan of 1977, which was developed by a librarian working in the Office of the President (University of California Libraries 1977).

During the 1980s, a similar situation caused the regents of the State of Ohio's universities to take interest in collections storage. The regents' decision to create a system of library repositories stemmed from an effort to curb overall library spending. The repositories were one of two statewide library resource-sharing initiatives created at this time; the OhioLINK consortium was the second.[4]

ReCAP, by contrast, was the outgrowth of the recognition of a common crisis in collections storage space among a loosely related group of major research libraries in the northeast. Formal discussions among these libraries began in 1996, when Scott Bennett and Elaine Sloan, university librarians of Yale and Columbia Universities respectively, convened library directors to explore cooperative solutions to the problem. (Yale eventually decided to create its own storage facility.)

While space was the immediate reason for creation of the repositories, many of the participating facilities were part of larger system- or consortium-wide collection-related strategic initiatives. The same

[4] Private institutions in Ohio can participate in OhioLink but to date are not eligible for use of the repository storage facilities.

planning processes that created the regional facilities in California produced Melvyl, the consolidated online catalog of UC libraries. In Ohio, creation of the statewide system of "book repositories" was paired with establishment of OhioLink, which negotiates electronic licenses and other services on behalf of Ohio's higher education libraries. CONStor was one of several initiatives bundled in an Andrew W. Mellon Foundation-funded project that resulted in the Five Colleges consortium.

2.1 Development Funding

Funding for the creation and operation of the repositories under discussion came from three kinds of sources:

1. state (SRLF, NRLF, SWORD)
2. consortium development (CONStor, ReCAP)
3. single institution (LSC)

Construction of the regional repositories in California and Ohio was subsidized with funds allocated by the boards of regents of the respective states. The ReCAP repository was developed by a consortium financed by Columbia University, NYPL, and Princeton University. The costs of adapting the CONStor storage facility, which occupies leased space in an existing building, were borne by the members of the Five Colleges of Ohio, Inc. Under the single-institution model, Duke University financed and developed the LSC on land acquired by the university for the purpose.

2.2 Scale

The size and capacities of the repositories vary widely. ReCAP and SRLF can hold close to seven million volumes each. The smallest of the facilities studied, the CONStor repository, has a capacity of only 200,000 volumes. (See Appendices 1 and 4.)

Most of the facilities are built on the modular system and may be expanded at minimal cost as collections grow. Such expansion is limited only by the availability of adjoining land and the resources to fund construction. ReCAP, for instance, can expand with available land to accommodate an estimated 35 million volumes. The original plan for California's NRLF envisioned the eventual construction of six modules, with a total capacity of 18 million volumes.

The CONStor and Five Colleges of Massachusetts facilities are not as easily scalable as are the purpose-built facilities. The CONStor facility, which shares a building with an unrelated organization, has little room for expansion.[5]

Actual occupancy rates range from 5.45 million volumes (the facility's maximum capacity) at the NRLF facility to the 21,000 volume-equivalents at the CONStor facility (about 10 percent of that facility's capacity).

[5] At most, CONStor could expand into an additional room, which would increase storage capacity by approximately 25 percent (50,000 items).

2.3 Physical Plant

Most of the facilities consist almost entirely of space specifically designed or outfitted for collections storage. The newer facilities are configured for high- and medium-density storage. Minimal space is devoted to ancillary activities such as processing, cataloging, and preservation, and to amenities such as study and teaching spaces, which campus libraries typically provide. When human activity is limited, a closed system, with high levels of security and environmental controls, can be maintained more easily and economically, and resources can be wholly devoted to the creation of robust environmental controls and structural elements such as shelving.

Most of the repositories included in this study were purpose-built. The California repositories, WRLC, Duke's LSC, the Ohio State facility, and ReCAP are all newly constructed and were specifically designed for storage. To achieve maximum storage density and efficiency, such buildings normally have 40-foot ceilings to accommodate shelving units. Retrieval of books is accomplished with the use of power-operated lifts for full-height spaces, or from decking placed at 10-foot intervals.

Some repositories occupy older buildings that have been refitted for storage. The CONStor facility, for example, occupies a portion of an old Carnegie public library. The building is owned and partially occupied by an architectural firm, from which CONStor leases space.

The Five Colleges of Massachusetts adapted a building that was built as a military bunker for the U.S. Air Force during the 1950s. The military later turned it over to the Federal Reserve Board, which sold it to Amherst College in 1992.

Most of the facilities studied contain environments adapted to long-term storage of paper-based library materials, with temperatures in the range of 40 to 60 degrees Fahrenheit and relative humidities ranging from 30 to 50 percent. Some facilities that were repurposed, however, have had less than ideal conditions. In some cases, with mixed-use buildings climate control has had to be adjusted to accommodate human occupation as well as collections, and has resulted in suboptimal conditions for long-term storage. Single-function, and especially purpose-built buildings, provide better environmental conditions than do buildings that must handle multiple functions such as storage, study, computer operations, circulation, and processing and cataloging.

Perhaps the most sophisticated of the facilities surveyed is the SRLF at UCLA. It has an on-site microfilming operation that generates revenue as well as digital reformatting capabilities for print and film materials. The reading room is equipped with copiers and microform readers. The UCLA film and television archive is also housed at this facility (a condition of the original state funding of the second addition to this facility). UCLA recently received a grant from The Andrew W. Mellon Foundation to build a 1,000-square-foot conservation lab in the SRLF workroom. The services of the lab will be offered to other SRLF libraries, possibly as a revenue-generating operation.

Like conventional off-site storage buildings, the repositories can be operated relatively inexpensively. Costs range from $ 0.17 to $2.38 per volume per year. The higher costs tend to be found in smaller facilities, which have not been able to achieve the economies of scale realized by the larger facilities.

2.4 Staffing

The staff-to-volume ratio at repositories is far lower than that at central libraries. The number of staff devoted to operation of the facility corresponds roughly to the amount of material stored at the facility. SRLF has more than 35 full-time equivalent staff, whereas fewer than five staff members spend time at the CONStor.

The economies of scale and highly regularized nature of the activities at the repositories permit staff, except for supervisors and facilities managers, to focus on a narrower range of tasks than do staff at full-service libraries. Tasks are relatively basic clerical or technician-level functions. This enables the repositories to make liberal use of students and unskilled workers.

2.5 Affiliated Services and Access

The repositories operate on the principle that specialization promotes efficiency and economy. It is more economical, they have found, to do a few things well than to try to offer the entire range of traditional library functions. For example, the repositories generally provide minimal core services for paper- and film-based materials. At the smaller repositories, services normally include unpacking, shelving, and retrieving materials. The larger facilities provide a wider menu of services, including basic cleaning, bar coding, labeling, delivery, and managing holdings control data (see Appendix 3).

Processing and preparation of materials for storage may take place at the originating libraries or at the facility. Processing entails changing location information in holdings records in the library's online public access catalog (OPAC) or integrated library system (ILS), bar coding for control by the repository collection-management system, and other tasks. At ReCAP, materials must arrive already bar coded and prepared for shelving. At the California repositories, materials are processed at the repository.

Some repositories maintain their own materials-control system while others use the existing libraries' OPAC. At NRLF, all records are maintained in GLADIS, the online integrated library system of UC Berkeley. GLADIS has special programming to accommodate processing at the NRLF. WRLC and the Five Colleges of Massachusetts record repository holdings in the common integrated library system already in use for the consortium. (The University of Massachusetts maintains its own separate collection OPAC as well, and the staff at the storage facility can update both systems.) The ReCAP libraries maintain separate online catalogs, but the consortium maintains a common inventory and circulation-control system for materials stored at the repository.

2.6 On-Campus Access to Materials

As Barbara Graham noted in her profile of the Harvard Depository, off-campus storage is viable only when it is accompanied by excellent intellectual access (through item-level cataloging and indexing) and rapid delivery of the materials to users (Graham 2001). The robustness of the services that the repositories provide for depositing libraries and patrons varies widely. Purpose-built centers, particularly the California regional facilities, tend to offer a broader array of services, including ILL, digital reformatting on demand, and microfilming. Others repositories offer a narrower range of services, namely, storage and retrieval.

At minimum, the repositories deliver materials from the facility to the depositing members' campus libraries. The repositories surveyed all placed a great deal of emphasis on rapid service. Delivery times range from a few hours to 48 hours. In some instances, the repository operates a delivery van service to and from the campuses; in others, the universities pick up and return the materials. The SRLF shares the cost of its delivery service with the UCLA library, the major depositor at that facility.

Some repositories have gained favor with on-campus users by providing conveniences that were not available when the materials were stored on campus. The LSC, for example, delivers items to the patron's choice of 12 on-campus libraries for charging. The patron can return the item to any campus library.

Most repositories also offer faculty and students of participating universities access to the aggregated monograph and serial holdings of all their depositing libraries. Such is the case with facilities operated by single jurisdictions, such as the statewide California regional library, the libraries in the OhioLink consortium, and CONStor. In some instances, however, these benefits were available prior to creation of the repository. Such access was a net gain for Columbia and Princeton Universities, whose partner in ReCAP, the NYPL, had not previously permitted circulation of its materials.[6]

2.7 Interlibrary Loan and Document Delivery

Some of the repositories offer ILL and DD to libraries that are not members of the consortium. The two California regional facilities and the Five Colleges of Massachusetts have loan-processing and DD staff on the premises. These facilities fulfill loan requests from faculty and students at participating universities as well as requests from libraries outside the consortium. They do not route those requests to the depositing libraries. This service relieves the depositing libraries of the burden of servicing lesser-used collections, which can be particularly labor-intensive when those collections are located off-site. The other facilities simply retrieve materials requested for ILL or borrowing and deliver them to the depositing library for processing. ILL

[6] There are limits to this service. Materials in the California repositories can be placed on reserve only by faculty from the university whose library deposited the materials.

and DD requests for patrons from non-UC libraries go to the lending library, and the books stored at NRLF go to the owning library for ILL or DD distribution.

2.8 On-Site Use of Collections

The repositories vary in the extent to which they provide on-site access to their deposited collections. Many do not encourage on-site use of materials; instead, they promote delivery of materials to campus reading rooms. The purpose-built facilities have high-density storage. Shelving configurations and the practice of arranging materials by size and accession number make browsing difficult. Faculty members cite the inability to browse the shelves and the lack of proximity to the collections as major drawbacks to repository storage.

To compensate for the collections' distance from campus, some repositories maintain reading rooms. The fullest menu of on-premises services is offered by the California regional facilities, which feature study rooms and permit on-site charging of materials to individuals holding UC library borrowers' cards. These facilities also permit stack access to certain collections for graduate students, faculty, and librarians. Most repositories are lightly staffed for reference purposes, and most require that users make arrangements in advance for on-site consultation of collections.

The privilege of on-site use tends to be confined to those who require access to large amounts of materials or very fragile materials. Not all repositories permit on-site use of fragile, special collections, or special-format materials, because such materials require special handling and more controlled conditions of use than on-site staff can provide.

The Massachusetts Five-College facility has the most liberal policy for on-site use of collections. Its reading room is open to the general public. This is because two participants in the consortium, Amherst College and the University of Massachusetts at Amherst, are federal depository libraries. Government documents are housed at the repository, and public access is a statutory requirement.

A few facilities prohibit on-site use. The CONStor facility, for instance, has no provision for study use and requires that requestors consult repository-held materials in on-campus libraries or offices.[7]

2.9 Configuration of Collections

The ways in which space is allocated and collections are configured vary from one repository to the next. To optimize use of space, books and serials are normally shelved by size and accession number rather than by call number. This makes it impossible to browse the collections. Materials are generally shelved in order of receipt, regardless of the source library and even when the depositing library retains

[7] On-site access to repository materials by depositing libraries does not apply to materials stored by the repositories such as the LSC and California regional facilities for nonconsortium or nonsystem libraries on a leased-space arrangement.

ownership of the materials.

In a few instances, the individual libraries' collections are maintained as discrete bodies of materials. In the ReCAP facility, for example, the holdings of each of the participating libraries are shelved separately. This complicates the allocation and planning for use of space. Materials from non-UC libraries stored at the NRLF are also maintained separately. As a rule, special-collections materials are maintained separately.

The Five Colleges repository consists of two discrete areas: the space in which Amherst College currently stores its own library collections and special-collections storage, and the space where the combined holdings of the Five Colleges are stored.[8]

3. Regional Repository Policies: Selection and Management Regimes

Each participating library generally decides which of its materials will be placed in the repository; however, the repositories, to varying degrees, have a hand in managing the intake of materials. All the repositories studied impose some restrictions on eligibility of materials for storage. Some guide the selection of materials for storage in a structured way, with the goal of reducing duplicative holdings and, in some cases, strategically building shared collections.

All repositories require that materials accepted be under at least minimal intellectual control. Materials must generally be included in an online catalog or integrated library system, and ideally this catalog is shared by the repository's member libraries. The sharing of a catalog or integrated library system permits the libraries to centralize certain processing operations such as assigning location and holdings information and bar coding.

The repositories impose few absolute embargoes; however, as a rule, they do prohibit storage of highly flammable materials such as nitrate film negatives, deteriorating or volatile materials, materials infested with mold or vermin, and materials that might be hazardous to the other collections.[9] CONStor and the California repositories do not accept materials that are so damaged or deteriorated as to inhibit routine handling and delivery.

Other repositories exclude certain items because of their physical properties. To achieve maximum density and allow flexibility for placement of materials, most facilities accommodate materials that fall within a limited range of formats. For example, books and boxed archives must be stored vertically in containers of a narrow range of uniform sizes and shapes. The California regional library facilities do

[8] Amherst College Library has more than 100,000 volumes in storage at the facility. These are currently separate physically and by ownership from the Five-Colleges materials. The college hopes that the faculty will agree to add the bulk of that material to the Five-Colleges collection.

[9] Some facilities, such as ReCAP, have stand-alone film vaults that can accommodate nitrate film. The ReCAP film vault is kept at a temperature in the 30s and it has fire-protection systems that are more sophisticated than those of the rest of the facility.

not allow realia, except for items that are integral to a particular book or archival collection. The SRLF also discourages deposit of materials in obsolete formats, such as pneumatic tapes and 5-1/4" floppy disks, which will deteriorate and hence probably never see use; this encourages libraries to explore conversion of those materials to usable formats.

Other pragmatic factors come into play when determining which items are appropriate for storage. The two main criteria are use and format. Low-use and "no-use" materials are favored candidates for transfer to repositories, on the assumption that their absence will pose minimal inconvenience to users. Faculty acceptance of the placement of research materials in off-site repositories is the primary factor in library decisions on deposits. The resident academic faculty, particularly those in the humanities and social sciences, are the primary users of the lesser-used materials that are frequently placed in repositories. For many faculty members, removal of materials from the campus library means the loss of immediate access to materials they need for research and teaching. Even though many university libraries no longer permit browsing in campus stacks, the impact of relocation is usually a serious consideration.

For this reason, many consortia build faculty consultation and involvement into decisions concerning materials to be deposited in the repository. The Five Colleges of Massachusetts, the California facilities, Duke, and CONStor all have formal mechanisms to involve faculty members in these decisions. Some libraries, for example, Duke, SWORD, and Columbia University, have devoted considerable effort to promoting faculty acceptance of repository storage by making them aware of the advantages of the facility and by building into workflows and services additional conveniences whenever possible. Despite such efforts, faculty reluctance to accept remote storage often acts as a brake on the rate at which some of the repositories are populated.

Selection of low-use materials for storage usually involves targeting certain large categories of materials, such as archives and other special-collections materials, older imprints, government documents, volumes of science journals that are no longer current, and foreign language materials. Materials that are easily handled in microform, such as archives, or materials in electronic form, such as JSTOR and Elsevier Science journals, are also prime candidates for selection. Such materials can be identified and expeditiously segregated from the rest of the collection.

Implementation and refinement of collection-management functions such as circulation tracking and control in integrated library systems enable libraries to identify low-use materials efficiently. Automated inventory control and retrieval systems make it possible to monitor use levels of materials that have been transferred to the storage facility. Nonetheless, identifying and isolating such materials can be extremely labor-intensive, and the cost of doing so is a major obstacle to making optimum use of the repositories.

A more viable option may be the "prospective" segregation of

certain categories of materials. Under this system, materials are designated in advance and transferred to repository storage as the owning library receives them. Because these materials tend to be more frequently used, however, few libraries designate newly acquired materials per se for off-site or repository storage.

Repositories also provide an economical and practical means of storing problematic bodies of material, such as materials that are unavailable for use because of access restrictions imposed by donors or collections that have not yet been physically processed or prepared for use. These materials are often already in storage for one reason or another. ReCAP, for instance, holds some sealed papers—university archives and government archives—that are closed to use for a specified number of years. These might also include special-collections materials that have only collection-level control and are not yet indexed.

Finally, deposit at the facilities provides relief for an on-campus space squeeze. Among the first materials that Duke relocated from on-campus libraries to its LSC were those that were displaced by construction and renovation projects.

3.1 Programmatic Selection Efforts

Some repositories actively manage the intake of materials to achieve goals that go beyond merely providing a place for low-use and no-use materials. One such goal is to reduce redundancy or duplication in their collections. The repositories take various approaches to this task. Some simply discourage libraries from including duplicates in their collection deposits. The California repositories, for instance, prohibit the placement of multiple copies of titles at the facility, although it is up to the library to check potential deposits against the facility's extant holdings before depositing.

CONStor not only discourages duplication among holdings stored at the facility but also helps eliminate duplicate materials before they are accepted. CONStor checks materials selected for storage by a participating library against its CONStor deposits through a central processing operation that serves all the participating libraries. The best copy is retained and placed in storage. It remains the property of the depositor. The inferior copy is returned to the owning library. Items selected for placement in the CONStor repository are publicized to the other institutions and to home campus faculty through Web pages and listservs.

While the effort to eliminate duplication stems in part from the desire to make the most economical use of space, such efforts also may stem from a desire to control redundancy in or rationalize management of the holdings of participating libraries. Such is the case, for example, in the Five Colleges of Massachusetts, CONStor, and California regional facilities. Rationalization may involve coordinating collecting responsibilities, negotiating collectively electronic-journal licensing, and assembling shared collections of record. The repository may fit into this scheme by serving as the locus, separate from

any of the individual libraries, for assembling, as it does at CONStor and Five Colleges, shared last-copy and copy-of-record collections.

This is possible only in systems or consortia where the repository program is closely linked with the collection-development and preservation programs of the participating libraries. Such a connection became possible at Massachusetts's Five Colleges and Ohio's CONStor because both repository efforts came about as part of broader joint collection management projects funded largely by The Andrew W. Mellon Foundation. This circumstance prompted the two consortia to shape their repositories as part of their larger collection-development and preservation strategies. The progress that some consortia have made in linking selection of materials for the repository to overall collection-development and preservation aims also has to do with the organizational structure underlying the consortium efforts. This is treated in section 4 of this report.

3.2 Withdrawal from Storage

The repository collections are considered relatively stable bodies of material. Repositories encourage the idea that materials moved to the facilities are intended for permanent storage. This notion is consistent with the principle that minimum maintenance and traffic promote cost-effective operations. Because a given library's materials are normally interfiled with those of other libraries at the repository, removal of large bodies or categories of materials that might be scattered about the repository is labor-intensive and costly.

Policies governing the removal of materials from storage by depositing libraries vary. Some repositories maintain "one-way door" policies; however, in a concession to real-world conditions, they will, under certain circumstances, permit materials to be removed and reintegrated into the original library's campus collections. For instance, an estimated 2,000 items are removed from the NRLF each year. Such transfers occur for a variety of reasons. In most cases, the reason is a substantial and constant rise in requests for the materials, or at least a spike in use during a brief period. Faculty members' requests for the return of materials are also honored. In other instances, renovations, expansions, and new construction give libraries more room to shelve materials on-site.

3.3 Implications for Collective Management

The common facilities, collection-management policies, and regimes described in the previous sections were designed to enable libraries to realize economies in the care and administration of their low-use collections. The repositories, in subjecting the collections to many of the same procedures and conditions of service, achieve a high degree of coordination among the depositing libraries, managing the collections as a single entity with respect to access and control.

When certain collection-management functions are merged or performed centrally under the auspices of a consortium, the library

relinquishes a measure of control over the collections, even though it may retain ownership of them.

Encouraged by the Office of the President at the UC, librarians have begun to discuss the concept of "shared collections." The proposed UC definition of shared collections does not address the issue of ownership, but allows campuses to decide whether to deposit an item into the shared collection. For the California libraries, such a limited sharing of collection materials "prospectively" might be enabled around electronic journals, where joint licensing, a form of resource sharing, has yielded economic and logistical benefits for the system. The California Digital Library, under the auspices of the University of California Office of the President, negotiated a university-wide contract for the digital database of Elsevier and Association for Computing Machinery titles that includes a limited number of print copies of each title. The print issues are to be part of a shared corpus of materials managed under the UC library system and stored at the SRLF from time of receipt.[10]

The Five Colleges of Massachusetts have actually merged ownership in some repository collection materials. Materials from the four private colleges in the consortium (Amherst, Mt. Holyoke, Hampshire, and Smith) that are placed at the repository become the property of Five Colleges, Inc., with one exception: Amherst maintains a separate collection of its own materials at the facility. In addition, materials owned by the University of Massachusetts Amherst, the fifth member of the consortium, remain under that university's ownership even after deposit at the facility, as required by state law.

3.4 Collection Ownership

There are important differences between common management of collections and shared ownership. For example, depositing libraries retain the right to withdraw their materials from the repository under the former arrangement, even though this may be difficult to accomplish on a large scale. (None of the repositories surveyed had yet received a request for wholesale removal of a depositor's collections.) Ownership of collectively managed materials nonetheless continues to be a volatile issue, particularly for large libraries whose stature in the community of American research libraries is closely linked to the number of volumes they own. But within the context of the repositories, the practical distinction between shared management of a body of materials and actual ownership can become difficult to make.

Ownership aside, the experience of the Five Colleges and others suggests that the retention of redundant materials by individual libraries can be far less costly when there is a shared "active" copy that is cooperatively managed for long-term retention and accessibility. The Five Colleges consortium identifies and retains the best copy

[10] The collections of the California libraries are technically the property of the Board of Regents. Their autonomous operation has created a high degree of independence in operations and collection management.

of titles from among the member libraries' holdings; the second and third copies are returned to owning libraries for disposition as they see fit. In this way, the repository becomes the locus for de-duplication of shared holdings. The inactive copies can be disposed of or kept in less-expensive "dark" storage.

In this respect, the issue of ownership is something of a red herring. Control, rather than ownership, is the factor that affects economics of these ventures. It is in the cooperative management of the materials that economies and rationalization of resources are realized. If materials are managed cooperatively, that is, subject to uniform policies, services, and rights, then many of the inefficiencies and redundancies that otherwise accompany single party ownership can be avoided.

4. Underlying Organizational and Funding Models

Behind each repository stands an organizational and financial infrastructure that supports and sustains activities and operations. The organizational and governance models and financial systems adopted have some traits in common; however, they vary from one repository to the next. These differences have implications for the repositories' programs and activities and for the relationships between the member libraries and universities.

The repositories operate under three kinds of governance or organizational models. Some are operated by a state system or agency. Others are developed and run by independent consortia. Yet others are operated by a single university or corporation but provide services to others on a fee basis. There are also hybrids—consortia where a single member plays a leading role or state-operated repositories where services are provided for a fee to private libraries or libraries that are not part of the system.

All three models generally have a dual governance structure, wherein overall direction of the facility is separated from management of day-to-day operations. An advisory or governing board usually oversees general policy matters, such as the kinds of materials accepted, the allocations of space to the depositing libraries, and the apportionment of individual libraries' share of operating costs. Such boards also guide general investment and budgetary strategy and future development of the repository. Management of the facilities' operations is usually the responsibility of one of the member colleges or universities. This entity oversees scheduling, workflow, logistics, and production.

The financial arrangements underlying creation and maintenance of the repositories vary. The participating institutions in state models make little investment in the repositories: funds for development and operation flow from the university system. The consortium model involves initial and continuing annual investments by all parties. Where a single university develops and administers the facility,

funds are obtained from other depositing libraries through leasing fees and fees for services.

Relationships between the participating libraries also range from a simple landlord-tenant relationship to true partnerships between libraries. Collaboration in this case extends beyond the repository effort.

4.1 The State Model

Participants

The libraries participating in the state-funded repositories surveyed include universities within the UC and Ohio State University systems. These include primarily research universities such as UCLA, UC Berkeley, and the University of Cincinnati.

Governance

Ultimate authority over the California and Ohio regional repositories is held by state-level offices—the UC Office of the President (UCOP) and the Ohio Board of Regents (OBOR). In both states, these authorities created the facilities and maintain a significant measure of governance and budgetary control over them. Although operation of the repositories is delegated to individual university libraries within both state systems, state-level authorities exercise a more direct measure of control over the facilities than they do over the individual university libraries.

The repositories in California and Ohio are considered part of the state higher education capital program; as a result, they do not compete in priority with other host-campus capital needs. In Ohio, the facility directors develop their annual budgets in consultation with the OBOR. This direct accountability to the state is not surprising, because the facilities represent significant capital investments that benefit more than one university within the system.

In California, an administrative body exists for each repository. In the organization hierarchy, this body, the Regional Library Board (RLB), lies beneath the UCOP but above the individual university level. The RLB is appointed by the university's provost and senior vice-president for academic affairs. The purpose of the boards is to bring the interests of the individual participating libraries and other stakeholders to bear on shaping the programs of the repositories. The RLBs are composed of the directors of the participating libraries, a representative of the Academic Affairs Division of UCOP, a representative of the UC Academic Senate, and a representative of the Librarians Association of UC. Nonvoting members are the state librarian of California (ex-officio, as a representative of public libraries), a representative of private academic libraries, and the directors of the Regional Library Facilities (ex officio). The directors of the repositories are responsible to the chairs of the respective RLBs on policy and program matters.

UC also has formed a Standing Committee on University-wide Library Collection Management Planning that is examining the roles and capabilities of the regional library facilities and will propose

models for future development of the facilities. The committee consists of UC university librarians and reports to the UCOP.

The regional boards and the standing committee provide policy and programmatic direction for the repositories and have enabled cooperative-management and collection-sharing initiatives to take root. These boards, through representation of the individual university libraries in their governance, also ensure that the collective interests of the libraries are served.

On administrative and operational matters, the facility directors report to the university librarian at the respective host university. The host university libraries have managed the facilities on behalf of the UCOP since 1994. UCLA operates the SRLF and is its major "tenant"; its collections occupy 80 percent of the space in the facility. (The director of the SRLF also holds an appointment as director of library resource sharing at UCLA.) UC Berkeley operates the NRLF. (The current director of the NRLF also holds an appointment as director of libraries technology at Berkeley.)

In Ohio, there is less central coordination of repository activities by the state. Once the repositories were created, OBOR control became primarily budgetary. Individual host universities have played the strongest role in shaping the repositories' programs and policies.[11] The state set a general programmatic direction for the repositories, namely, they were to be high- and medium-density facilities for low-use materials in state university libraries. The OBOR then solicited and evaluated proposals from individual universities to develop the regional repositories and awarded funds to the successful bidders.

Interinstitutional advisory groups provide Ohio's SWORD with input from the various collection constituencies, such as faculty, students, and librarians. One such group includes library deans from depositing libraries; the other is a project team of associate deans. The facility director meets regularly with the access services librarians from depositing libraries. Engagement of Ohio higher education authorities at the OBOR level is chiefly on matters of capital spending rather than policy.

System-level governance of the California and Ohio repositories suggests that they are more likely to favor system-wide interests and strategies, such as preserving the state's collective corpus of scholarly resources and cost sharing in collection development, over the campus-specific priorities. This presumes, however, strong ongoing involvement at the system level, which has been more typical in California than in Ohio. In California, formal structures such as the RLBs and the Standing Committee on University-wide Library Collection Management Planning are loci for communication and cooperation among the individual universities and among such stakeholders as faculty, librarians, and UCOP and even libraries outside the system.

In Ohio, the initial goal set by the state—to provide cost-effec-

[11] Although OhioLink, a state-level organization to promote cooperative action among the Ohio libraries, was set up at the same time as the repositories, it is only loosely affiliated with them.

tive storage of collections for Ohio's universities—was achieved. The system provides little incentive for the repositories to pursue further cooperative management strategies with the participating libraries and less leverage for the host institutions to foster such cooperation.

Funding Model

The capital and most of the operating funding for the California and Ohio repository facilities come from the respective state university systems. Funds for capital expenses and operations at California's SRLF and NRLF are requested from the state each year by the UCOP as line items within the budgets of the responsible universities.[12] These budget lines were initially provided by the state as part of the UCOP budget and resided there until the mid-1990s, when the responsibilities and budget lines were distributed to the chancellors of UC Berkeley and UCLA for the NRLF and SRLF, respectively. This change occurred amid statewide budget cuts, as part of an effort to more closely associate budget lines with the corresponding cost centers and avoid the appearance of excessive spending at the President's level. Funds for the facilities are part of the larger university "lump-sum" library allotment. While technically the annual allocations to the facility are determined by the university librarian, their funding levels have remained relatively stable as line items since they were in the UCOP.

The Ohio repositories have a similar arrangement. The funding level for each repository is set by the OBOR, even though a host university administers the facility. These funding levels are determined by representatives (usually directors) of the libraries responsible for the repositories in direct consultation with the OBOR. The budget for each facility is passed down as a line item in each host university's budget and then to the university library's budget. The allocation is sacrosanct and may not be used for any other purpose. It is subject separately to across-the-board changes in the state higher education budget and can neither be sheltered from these nor encroached upon for other purposes. This provides the repositories a degree of immunity from shortfalls and shifts in budget priorities at the individual university level. At the same time, it renders the repository's budget more sensitive to fluctuations in the state budget than the budget of host university library itself, which can often draw upon other sources of funding such as gifts and endowments.

By charter, the California regional facilities may obtain supplementary funds for services to non-UC library tenants.[13] While in theory this activity could skew the repository's program toward seeking greater revenue by increasing service to non-UC customers,

[12] For the SRLF, UCLA augments these with salaries for FTE staff devoted to processing of UCLA materials, and shares the cost of a delivery truck and driver that serves the SRLF in the morning and the UCLA campus in the afternoon.

[13] The terms of the regional library facilities' charter stipulate that a minimum of 10 percent of the space in regional library facilities be set aside for non-UC libraries. Under this kind of arrangement, the SRLF provides Loyola Marymount temporary "dead storage" of about 65,000 volumes.

safeguards are in place to prevent this. For example, it is clearly understood that direct budgetary authority for the repositories is held by the operating universities on behalf of the system.[14] Moreover, the governance structures ensure that the policies and programmatic aspects of facilities serve the UC libraries' interests first.

The drawback to the state-supported financial model is one that is often associated with so-called entitlement funding, namely, there is no direct correlation between the user's investment and benefits derived. Since the individual libraries are not required to pay for use of the state repositories, they have a considerable incentive to use the facilities but no incentive to invest in optimizing that use. Deduplication, last-copy, and other programs to rationalize selection and population of the repositories are likely to have few subscribers under this system.[15] Conversely, with the state-supported model, the program of the repositories relies upon the availability of resources at the state level; it is therefore more sensitive to the priorities and interests of the state and university than to those of the constituent libraries. For this reason, the libraries' individual needs for space and services may not be as strong a driving force for the repositories.

4.2 The Consortium Model

Participants

The libraries participating in the consortium repositories surveyed included large private universities, such as Columbia, Princeton, and George Washington, and private four-year colleges and universities, such as Oberlin, Wooster, Amherst, and Hampshire. The NYPL, a member of the ReCAP consortium, is the only nonacademic library to participate in a repository consortium. Individually, most of the repositories serve academic libraries of comparable size or governance. All the CONStor libraries, for instance, are private liberal arts colleges. Two of the repository consortia, however, bring together different types of libraries. ReCAP links two private universities and one public institution, the NYPL. The Five Colleges of Massachusetts repository serves four private colleges and one state university. WRLC serves six private and two public universities, ranging in size from 2,000 to more than 20,000 students.

Governance

Four of the repositories surveyed are operated by separately incorporated, not-for-profit organizations or consortia formed by the participating universities or libraries. Three of the consortia were originally formed to undertake a wide range of cooperative activities. The consortia that operate the Five Colleges repository in Massachusetts,

[14] The California Digital Library also contributes funds for resource-sharing projects.

[15] The University of California set a minimum deposit target for each university library of 10,000 volumes per year. Although the minimum has not been strictly enforced, university libraries' requests for on-campus capital expansion are considered with reference to their meeting these targets.

CONStor, and the WRLC predate creation of the repositories.

Five Colleges, Inc., of Massachusetts and the Five Colleges of Ohio administer a broad range of cooperative activities for the participating colleges and universities, while ReCAP and WRLC were created to facilitate specific library-related activities. ReCAP's initial mission was to establish the repository facility. WRLC participants joined forces to effect a set of collection-related initiatives: development of a common integrated library system, cooperative collection development, and digital library development, as well as the shared off-site storage repository.

Governance of the consortium repositories is centralized: the directors of the facilities receive policy and programmatic direction from the consortia's governing boards. In the older consortia these boards usually hold sway over the consortium's nonlibrary activities as well. The CONStor repository, for instance, operates under the aegis of The Five Colleges of Ohio,[16] a corporation governed by the presidents of the five colleges, who also serve as the group's board of directors. Both the CONStor facility director and the coordinator for collection development are employees of the Five Colleges of Ohio, Inc., and report to the library directors. Consortium operations and programs are monitored by the consortium executive director, who is an ex-officio member of the Library Directors' committee and reports to the Operating Committee, which consists of the chief financial officers of the five colleges, and to the Board.

The WRLC director reports to a board of directors consisting of presidents of the member universities, and the director and her staff are employees of the consortium corporation. The director receives operational direction from the WRLC directors.

ReCAP is governed by a board of directors comprising the three library directors, associate provosts from Princeton and Columbia, and the senior vice president for administration, finance, and business affairs at the New York Public Library. (The last currently serves as the president of the consortium.) The executive director of the ReCAP facility reports to this board.

Consortium governance promotes cooperation among the participating libraries and helps ensure that programs and policies reflect the interests and priorities of the entire community of member institutions. At ReCAP this is enforced by a requirement in the consortium's bylaws that all major policy decisions regarding the repository be reached unanimously by the board.

Representation on the university administration level is also likely to shape the repositories' programs around the larger agendas of the participating universities. Where there is a longstanding collective agenda to strengthen combined library research holdings, as there is at the Five Colleges of Massachusetts and the Five Colleges of Ohio, the program of the repository is more likely to be designed to advance that agenda through cooperative collection development

[16] The Five Colleges of Ohio is a nonprofit corporation founded in 1995 with funding from The Andrew W. Mellon Foundation.

and sharing than in cases where no such tradition exists.

The operations of consortia repositories are sometimes placed under one of the consortium member libraries. Such is the case with ReCAP, where the facility director and staff are employees of Princeton University. For ReCAP, this is a practical way of minimizing the administrative load on the actual governing authority.

The director of the Massachusetts Five-College repository is custodian of the collection jointly held by the consortium, but not manager of the facility, owned by Amherst, that houses both the consortium collection and some of Amherst's own holdings. The director reports to the college librarian of Amherst College, but in managing the deposit collections is under the jurisdiction of a Librarians' Council that is composed of the library directors of the five member institutions. The council sets policies for the repository but does not make decisions on selection. (The Five College Collection Management Group determines what will go to the facility and sets the schedule; faculty members participate in the selection decisions and are able to veto proposals for some materials.) The University of Massachusetts does not have a voice in decisions about the materials of the other libraries, and vice versa.

In arrangements where one consortium library plays a greater role in operation of the repository than others do, some might fear that the interests of that library would prevail over those of the other libraries or of the consortium at large. In practice, however, strong, formalized governance and financial policies and procedures can level the playing field. Administrative mechanisms, such as ReCAP's requirement that policy and program decisions be unanimous, strengthen this assurance.

Funding Model

The capital and operating budgets for the consortium repositories are derived from consortium members. In most cases, the individual participating libraries make initial investments to develop the facility. Thereafter, they make annual payments to support costs of operations.

In the case of ReCAP, the three consortium libraries each contributed a third of the $3 million needed to purchase the land for the facility, which subsequently became the property of the consortium. The libraries jointly funded construction of the facility; individual contributions were based on the scale of each institution's need for the storage space. WRLC's facility was funded by a grant from the U.S. Department of Education under the Graduate Academic Facilities program. The property was donated by Prince George's County, Maryland. The ReCAP facility and the WRLC facility are thus owned and fully controlled by the respective consortia.

The Five Colleges of Massachusetts and the CONStor facilities are housed in pre-existing buildings that were renovated and adapted for collections storage by the consortia. The Five Colleges of Massachusetts facility is owned by Amherst College, which leases space to the consortium on an annual basis. The CONStor repository

is leased by the consortium from its owner, a for-profit organization not otherwise affiliated with the consortium or its university members. These leasing arrangements present higher degrees of risk to the long-term maintenance of the repository, because control of the facility is not fully under the control of the consortium.

Members' annual contributions to operating costs are usually based on an a priori formula. At WRLC, members pay equal shares of the fixed operating costs of the storage facility. Member libraries receive the right to the use of storage space (on a first-come, first-served basis) and to retrieval and delivery of items. They pay separately for the one-time direct cost of transporting and accessioning materials into the facility on a per-volume basis.

At ReCAP, a sophisticated cost-allocation model divides costs into activity costs and fixed (storage) costs. Activity costs are non-fixed labor costs plus an administrative charge paid to Princeton. Activity costs are allocated to members on a pro rata basis as determined by the "activity units" generated by each member each year. The remaining storage costs are apportioned among the three institutions at the rates of 43 percent each for NYPL and Columbia and 14 percent for Princeton. The fees reflect the amount of space expected to be occupied in the facility by each library over an initial three-year period. (Princeton's need for space was less critical at the time of development.) The initial apportionment will be renegotiated when the fourth module is completed.

The Five Colleges of Massachusetts have a relatively constant apportionment for each of the participating libraries' share of the annual costs of operating the facility. That share is based on an "elevenths formula."[17]

Each CONStor library is assessed 20 percent of the annual operating budget for the storage facility. In return, each library can assume use of the same percentage of the total storage space at the repository. This system encourages use of the facility by not penalizing the heavy users, but it is probably not scalable, since at some point the low users' contributions (in absolute terms and in relation to the heavy users' fees) will no longer be cost-effective.

An arrangement under which member fees are apportioned on the basis of specific need, such as their immediate or near-term demand for space, can pose a problem for consortia. It does not ensure the equitable contribution of members to the longer-term goals of the consortium. Members who in the past have not invested heavily in building their own collections are less likely to bring to cooperative efforts the same assets, material or monetary, as do mature, historically strong research libraries.

Conversely, when consortium members' apportioned contributions to the operating costs of the repository are unequal, those who

[17] The projected annual operating costs are divided by 11, and each college pays an agreed-on portion, based on its size and the expectation of how much the space materials originally owned by the college will occupy. The current breakdown is Hampshire College 1/11; Smith, Mt. Holyoke, and Amherst 2/11 each; and University of Massachusetts 4/11.

bear the larger share of the funding might exert a greater influence on the repository's program. Again, these potential imbalances can be offset by appropriate governance and financial policies and procedures.[18]

4.3 The Proprietary Model

Governance

The Library Service Center is operated by a single party, Duke University. LSC was developed and is administered by Duke University Libraries, the governing authority for the humanities, sciences, and social sciences libraries. These libraries share space in the repository with the libraries of the university's four major schools: business, divinity, law, and medicine. The heads of the latter four libraries each report to the dean of the respective school and operate independently of the Duke University Libraries administrative unit, which is headed by the vice provost for library affairs and university librarian.

The university provides funding for the LSC as part of the central libraries budget. The facility is part of the university's effort to coordinate collections management among campus libraries, which have traditionally acted independently. Within the last five years, the university libraries have begun to move toward coordinating services and functions for all of the libraries. They introduced a common automated cataloging system. The libraries are also conducting a preservation assessment of collections campus-wide.

The facility was developed with an eye to providing storage space for other university libraries in the Triangle Research Libraries Network. To date, only one such library, the UNC at Chapel Hill's Health Sciences Library, uses the facility. Storage and related services are provided to UNC for an annual fee.

Funding Model

Capital and operating funds for the LSC are supplemented by fees derived from various repository-related activities. The LSC currently houses about 250,000 volumes from the UNC Health Sciences Library in return for a set annual payment, based on the amount of material stored and transaction-based fees for collection-related services provided by the LSC (for example, ILL, DD, and photocopying). This model resembles that of the Harvard Book Depository, which is formally affiliated with only one university but leases space to others.

Some consortium-run repositories derive modest revenues in exchange for providing storage and related services to nonparticipating libraries and organizations. For example, non-consortium libraries may store materials at the WRLC facility for a fee, providing those

[18] This suggests that the University of Massachusetts might exert a larger influence on the Five Colleges repository's program than any of the other libraries individually. This has not thus far been the case, as the University's vote is balanced by the combined interests of the four private colleges of the consortium, whose longstanding ties and common interests create a countervailing solidarity.

materials are available for use by consortium libraries. Such materials are not interfiled with consortium library materials.[19] Departments other than the main library at WRLC member institutions may store materials at the repository on a space-available, cost-recovery basis. Such materials include university records, artwork, special materials related to faculty or departmental grants, and materials belonging to the law or medical libraries. Direct costs are recovered through charges for accessioning, retrieval, and refiling; shelf storage (to recover prorated share of utilities and other building expenses); and administration.

Some state repositories, such as California's SRLF, derive modest fees for microfilming and other services provided to consortium members and nonmembers.

When storage and affiliated services are provided on a fee-for-service basis, whether by a single university or a consortium, the relationship between the facility and depositing library is more akin to a landlord-tenant relationship than to the relationship between repository and consortium members. The depositing organizations are normally not eligible to participate in governance of the facilities, and they do not have any significant investment in the welfare of the repository.[20] Under such arrangements the "tenants" are not likely to be strongly motivated to support necessary capital improvements or other measures that advance the facility's broader, long-term goals.

5. Other U.S. Supraregional and National-Level Repositories

5.1 Center for Research Libraries

Founded in 1949 as a regional library repository by 10 midwestern universities, CRL now has more than 150 member colleges and universities. The materials in its custody include about four million volumes and volume-equivalents. Ownership of these materials is shared by the member institutions. The CRL operates a climate-controlled, medium-density storage facility that also houses most of its processing, cataloging, ILL, and DD operations.

CRL holdings consist of low-use primary source materials for research in the humanities, social sciences, and sciences. These holdings resemble those of the regional repositories. They are especially rich in newspapers, archives, journals, and government documents. Many of them are non-U.S. in origin, and many are in microform.

CRL developed its corpus of materials through purchases and donations, with the aim of supplementing on-campus and local holdings of member research libraries. Materials are added to the reposi-

[19] The WRLC informed the public that because of space limitations no new materials from nonmember libraries would be accepted. This policy was effective February 1, 2002.

[20] The regional library boards governing California's the Regional Library Facilities set aside a non-voting seat for a representative of a non-UC depositing library.

tory through deposit by voting member institutions, purchase by the consortium, and area studies preservation microfilming and digital reformatting programs that are governed by area studies specialists from member institutions. Voting members can nominate and vote for collections to be purchased each year with CRL funds. Duplication of holdings is avoided by policy.

Governance

CRL is a consortium of universities, colleges, and research libraries. It is a nonprofit 501(c)(3) corporation governed by the community of North American research libraries. CRL's board of directors is elected by the center's voting members and is drawn from the research library and academic community. As such, the center's governance provides some assurance that its collection-management and preservation programs will serve the collective interests of its voting members, that is, the large and midsize research libraries in that community.

Funding Model

CRL's capital and operating costs are paid from annual membership fees, revenues from sale of microforms and services to nonmembers, and grants. Since the collections are collectively owned, member fees are not tied to storage but are based on the size of the member library's own collection and the five-year average of its acquisition expenditures. With this economic model, CRL's collection-management program is most likely to be shaped by the collective interests of the research libraries in its voting membership rather than by any single party. Since the formula used to assess annual member fees limits the maximum annual fee a member institution may pay, larger libraries have some advantage over smaller ones.

5.2 Library of Congress

The Library of Congress serves as a de facto "library of record" or national repository for the American research community. This role is expressed and formalized in the Library's mission, which is "to make its resources available and useful to the Congress and the American people and to sustain and preserve a universal collection of knowledge and creativity for future generations" (Library of Congress 1999).

This goal of building and maintaining comprehensive collections as a permanent resource for the community informs many of LC's activities. The Library has put structures in place to ensure the long-term availability of its print holdings to the public. Holdings are stored and maintained in several secure facilities and are made available in reading rooms and through interlibrary loan. They are inventoried and discoverable through metadata available to the community through LC's own online catalog, OCLC's WorldCat, and other utilities. Their availability is enhanced with reformatted versions of some of these holdings in microform that are produced and

distributed by the Library, and in electronic form in the digital text, image, cartographic, audio, and moving image files mounted on the World Wide Web under the National Digital Library initiative.

LC, as the home of the U.S. Copyright Office, has amassed the largest existing corpus of American imprints. Copies of published materials deposited in the Copyright Office by authors and publishers as part of the copyright-registration process form the core of these holdings. While this process has provided a continual stream of materials, LC's collecting program also acquires American materials by other means, including purchase, exchange, donation, and deposit agreements with publishers.

Because of the broad scope of LC's holdings of published materials, its bibliographies and catalogs serve as points of reference for other libraries' acquisition and collection-management decisions. Other libraries key their own collection-management decisions to LC's collections policy statements, which define the scope of LC's intended (if not actual) coverage of published materials. These policies not only specify the Library's responsibility for acquisition and preservation of materials on a wide range of subjects and in a variety of formats but also indicate the areas in which it expects others to collect and preserve materials. The statements also cover other collection-management matters, such as the terms and extent of the Library's commitment to retain various kinds of printed materials in original form.[21]

LC is sensitive to the collecting and preservation efforts of other major U.S. research libraries. It has participated in such programs as the Research Libraries Group (RLG) Conspectus and area studies projects such as the Handbook of Latin American Studies and the CRL's Foreign Newspaper Microform Project. It also recognizes and respects the purview of other libraries in preserving materials in certain domains, such as the AAS with pre-1877 U.S. imprints.

LC's ability to realize its goal of being a comprehensive national repository has been limited by the nature of its governance and funding, as described below.

Governance

LC is an agency of the legislative branch of the federal government. As such, it fulfills a dual role, as the Library's Web site expresses it, as a "working library of a government and a de facto national library." The Library's strategic priorities indicate that its obligations to libraries, scholars, and other constituencies, in fact, are secondary to its responsibility to serve the information needs of the United States Congress.

> As the repository of a universal collection of human knowledge

[21] In its collection policy statement for newspapers, for instance, the Library specifies microfilm as its preferred format for permanent retention. LC collecting commitments are also governed by federal statutes, such as the repository library responsibilities defined in Chapter 19 of Title 44 USC, the authority for the establishment and operation of the repository program (http://www.access.gpo.gov/su_docs/fdlp/pubs/title44/chap19.html).

> and the creative work of the American people, the Library has the primary mission to make this material available and to identify, analyze and synthesize the information it contains to make it useful to the lawmakers who are the elected representatives of the American people.[22]

The Library's constituencies are, in order of priority, "the Congress, the U.S. government more broadly, and the public."[23]

This hierarchy can work against LC's repository role. An example of this is the availability of books and serials from its general collections for circulation to congressional offices, the federal judiciary, and certain executive branch agencies of the federal government. A legacy of days when the government was much smaller and libraries' lending practices more informal, this practice has recently been curtailed somewhat. Nonetheless, circulation and the accessibility of Library general collections stacks to congressional staff and others has undermined the Library's efforts to safeguard and maintain the integrity of its holdings.

These priorities might also tend to favor the acquisition and preservation of certain kinds of materials, such as recent materials relating to economics, science, politics, and other matters of current interest to legislators, over historical materials or those pertaining to the humanities. Historically, this has not been the case: the Library has consistently devoted the major portion of its collections budget to primary resources for scholarly research. Should budgetary constraints arise, however, it is always possible that near-term congressional priorities will override those of "secular" research.

Funding Model

LC's program is also affected by the nature of its funding. The storage and preservation of its collections are funded primarily by the United States Congress through annual appropriations. The Library is not eligible for funds from federally funded grant programs such as those supported by the National Endowment for the Humanities and National Endowment for the Arts. In recent years, however, the Library has raised a considerable amount of funding for special collection-related initiatives from the private sector—from U.S. corporate and individual donors and private foundations. This funding is modest compared with the Library's appropriated funding.

Federal funding makes the Library's program sensitive to fluctuations in the federal budget and to the often-changing political and economic priorities of the federal government. This funding model also requires that Library preservation programs and fulfillment of the Library's role as repository of record compete with other national priorities such as defense, social programs, and technology.

Encouragingly, the Library's role as the national library was formally recognized by the Congress in its federal appropriations

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22 Ibid.

23 Ibid.

for fiscal year 2002. In that legislation, the appropriation for the "National Library Program" was designated as distinct from funds earmarked for the other program areas under the Library appropriations umbrella (that is, the Congressional Research Service, the Law Library, and the Copyright Office).

In recent years, LC has taken some important steps to strengthen its role as a national print repository and its accountability to the larger community. In 1992, the Library closed access to its general collections stacks to all but LC staff, to protect its artifactual holdings from damage and theft. More recently, it initiated a comprehensive inventory of its general collections. The inventory entails a shelf-by-shelf survey of the Library's general-collections stacks, examination of physical copies of monographs and serials stored there, and revision of holdings information on a title-by-title basis. Some books and newspapers, specifically pre-1805 imprints, will be relocated to special collections such as the Rare Book and Special Collections Division or to "medium-rare" storage areas, where they will be maintained under more controlled conditions. The outcome of this audit of print holdings will be a better sense of the preservation needs of the Library's artifactual collections, better control of these collections, and greater reliability of the holdings information pertaining to these materials.

In 2002, the Library brought online the first module of a much-needed remote collections storage facility at Fort Meade in Maryland. When fully built, the facility will hold millions of volumes, including some special collections.

A third effort is a "heritage-copy" program designed to ensure survival of the printed heritage of the United States. This is being done by creating a comprehensive, prospective archive of printed materials published in the United States. Such a program will involve setting aside in "dark" storage one of the multiple copies of each U.S. imprint deposited for copyright, along with the creation of a system of incentives for American publishers to deposit their published output. (Currently, not all published works are deposited for copyright, and large categories of deposited materials, such as textbooks, most cookbooks, and auto repair and product manuals, are not retained for Library collections.)[24]

While the details of this program are still being defined, the program in many respects resembles the Canadiana Preservation Collection initiated by the National Library of Canada. When accomplished, such an effort will strengthen the Library's role as a repository of American imprints and its contribution to cooperative management of the nation's printed collections.

[24] The concept of the heritage-copy program was outlined by Winston Tabb, then LC associate librarian for collections services, in a meeting on last-copy preservation convened at the Library of Congress on June 25, 2002. The LC's continued consideration of such a program was confirmed recently by Director of Acquisitions Nancy Davenport and is included in its current strategic plan.

5.3 American Antiquarian Society

The American Antiquarian Society (AAS) has formally assumed the responsibility for the comprehensive preservation of U.S. imprints before 1877. Its mission is "to collect, preserve, and make accessible all materials printed in America in this period" including books, pamphlets, newspapers, periodicals, broadsides, music, children's literature, graphic arts, genealogy, and local histories, among other genres. At present, the Society's collections encompass more than 3 million printed items, including 675,000 books, 2 million newspapers, and thousands of graphic images. In 2002, the Society doubled the collection storage capacity of its current facilities with the addition of a compact shelving vault.

The AAS has begun to fill gaps in its current holdings by soliciting newspapers printed in the United States during its focus period from U.S. libraries (including the LC) and historical societies. These materials are deaccessioned and donated to AAS by contributing libraries for permanent retention. (The Society disposes of inferior duplicates, however.)

The facility has a staff of three professional conservators and a full curatorial staff on the premises. AAS maintains an on-site reading room, cataloging staff, microfilming operations and reference, and DD services. Records of the Society's holdings are available online through RLIN and OCLC, and on the Internet through the Society's own OPAC system.

The archival conditions of care afforded the Society's holdings, and the fact that they do not circulate except for special exhibit loans, provides a high level of assurance that they will be preserved even if they are "last copies."

Governance

AAS is an independent, nonprofit, 501(c)(3) charitable corporation. Its policies and programs are shaped by a 22-member council whose members are elected according to the society's bylaws and who appoint the president of the society. While this model fosters good stewardship of the materials in the Society's possession, it does not offer mechanisms to ensure accountability to the larger community of libraries who might rely upon the repository for comprehensive archiving of American imprints.

Funding Model

Operating funds come from a combination of investment earnings on endowment, royalties, revenues from cost-return services connected to the collections, charitable contributions, and grants. With this funding model, as with the society's governance, there is little incentive for the society to align its collection-management and preservation efforts with the goals of the greater library community. Despite this, the AAS has voluntarily assumed an important preservation role that benefits the community at large.

6. Some Repository Models Abroad

6.1 National Repository Library of Finland

The National Repository Library (NRL) of Finland is an example of a traditional "fallback" library that serves a nation's libraries. Funded by the Finnish government, the library serves the country's higher education community by preserving for study the comprehensive published output of Finland. It was founded in 1989 as a repository to be shared by the libraries of Finland. Materials are received as transfers from other Finnish libraries and become the property of the NRL.

The basic functions of the NRL are to receive and store published materials transferred from other libraries and make them available for use to the country's academic libraries, public libraries, and the special libraries. It is a "second-copy" repository; that is, it retains copies of materials for which at least one other copy is available elsewhere in a participating Finnish library. It thus complements the holdings of the network of Finnish libraries. The collection includes monographs and periodicals, as well as series in all languages and in all fields: fiction and nonfiction, dissertations, and books in Braille.

The contributing library selects the books to be transferred to the NRL. The repository acts as a central clearinghouse for duplicates, turning back copies of materials already held. Duplicate monographs and periodicals are sent to other libraries in Finland, to neighboring countries, and to developing countries.

The facility also lends and delivers documents from its corpus to libraries and information services elsewhere in Scandinavia and Europe. Libraries can order material online or by e-mail, fax, mail, telephone, or through Ariel document delivery. There is no charge for ILL and DD.

The library has reading rooms, duplication and reformatting services, a preservation studio, and cataloging and bibliographic services.

Governance

The NRL was created by and operates as an independent library under the auspices of the Finnish Ministry of Education. Its activities are directed by a board whose members are appointed by the Ministry of Education. The library was established in the Law Act of 1078/88 and Decree of 94/92.

6.2 CARM Centre, Australia

The most fully realized model of a cooperatively funded interinstitutional repository is Australia's Cooperative Action by Victorian Academic Libraries (CAVAL). The CAVAL Archival and Research Materials (CARM) Centre preserves archival and research material

for Victorian universities and the State Library of Victoria. It contains last copies of valuable but low-usage archival and research materials to ensure that copies of "tertiary-level" materials that are in good condition are available for future research. It also provides reformatting, ILL, and DD services for the consortium libraries. CAVAL fosters the collective ownership of materials stored at CARM.

The consortium also supports a wide range of professional activities for the member libraries. Its mission is to "enhance the effectiveness of the educational and research activities of its member institutions." Initiatives include the Victorian Kinetica User Group, Reference Interest Group, digitizing services, and a combined collections catalog.

The CARM Centre was completed in June 1996 and opened in February 1997. It is located in Bundoora in the LaTrobe University Research and Development Park. (LaTrobe University provided the site and was a capital contributor to completing the facility.) CAVAL's other members are the libraries of Melbourne, Monash, Ballarat, Swinburne, and Deakin Universities, the Victoria University of Technology, and the State Library of Victoria.

Impetus for creation of the CARM Centre was provided by a shortage of space at the state library and a number of the libraries at the Victorian Universities. The national government has put a great deal of pressure on Australian universities to economize and rationalize their growing investment in storage for library collections.

The center will be constructed in three stages. Stage 1 holds the CAVAL offices, workrooms, and training, preservation, and seminar facilities. This stage also includes a storage facility that will house close to one million volumes of archive and research material. When all additional stages of the facility are completed, the CARM Centre will hold about two million volumes.

Monographs are available for loan to libraries and institutions. Periodicals must generally be used on-site. Document delivery is provided for articles. The CARM Centre has on-site processing facilities, a reading room, and a preservation studio.

The centre houses a number of low-use collections owned by individual members. These include two major Australian heritage collections: the State Library of Victoria Manuscript Collection and the VICLINK Fiction Collection, which comprises 50,000 volumes. The center also holds the University of Melbourne's collection of theses written prior to 1974, as well as foreign government reports, journals, and dissertations.

Ownership of some collections placed at the CARM Centre is ceded to the consortium. The center has an active program to reduce redundancy among its member collections through single-copy preservation. The first copy of any item received by the centre is designated as the "last copy." An item thus designated can be replaced only by a copy of the same edition that is in better condition according to physical standards set for the repository.[25]

[25] The operations and terms of service of the CARM Centre are stated in the Collections and Services Policy Manual, which is available at: http://www.caval.edu.au/pst/carm/cspm/index.html.

CARM does not require that ownership of all items held at the repository be ceded to the consortium. If a library is prohibited from *ceding ownership by statute or by terms of endowment or donation,* it may place volumes on long-term loan.

CAVAL recently joined with Australia's two other major university libraries, Flinders University Library and the Adelaide University Library, under the auspices of Consortium of Australian University Libraries, to create a national-level organization Research Resources Australia (RRA). RRA has been charged by the Australian university community to develop guidelines for collection material development, including retention of last-copy materials; to rationalize the holdings of CAVAL and Adelaide and Flinders repositories; to explore the possibility of the creation of additional storage facilities; and to focus on the national role of the repositories.

RRA will also develop expertise in and storage facilities for materials that are in unwieldy formats, such as maps, films, and bound newspapers; review courier mechanisms between repositories and to end-user institutions; and become a focus for relationships among international repositories with Australia and within Australia.

Governance and Funding Model

CAVAL is a not-for-profit corporation owned by the Victorian vice-chancellors. Funds for constructing the CARM Centre were contributed by each of the participating libraries, and a percentage of its space is apportioned to them roughly according to their capital contribution. Use of that space is provided to the capital contributors free of charge. Each capital contributor may house materials in the consortium or nonconsortium collections up to their allocation of shelved volumes. Nonconsortium collections must be removed if the consortium collection requires the space occupied. Items deposited in excess of the "notional" allocation for shelved materials are charged on a per-volume at a rate set by the CAVAL board. The notional space of capital contributors will not be preserved if other contributors lodge materials at a charge. Noncapital contributors who are CAVAL members get no notional space or shelving, but they may contribute to consortium collection at a per-volume rate set by the CAVAL board.

Loan fees are charged for non-capital contributors and non-CAVAL members.

7. Factors that Promote Cooperative Collection Management

The repositories discussed here achieved some success in coordinating collection management at the regional level. Many of them, notably those of the University of California system and the two consortia of private colleges, have been the sites of coordinated collection management and development among affiliated libraries. At these sites, the participating libraries have moved beyond merely satisfying their immediate needs for storage space and have begun to

use the repository facilities as tools with which to reduce or eliminate redundancy and systematically archive last copies of certain kinds of materials. For CONStor, Five Colleges, and California, this cooperation has enabled the rationalized management of individual on-campus library collections as well.

Several factors contribute to success on this front. First, proper architecture, technical systems, geographic location, workflows, and policies are all important to the facilities' effectiveness, as are the geographic proximity of the members served and the expandability of the facility. Providing a set of services (for example, ILL, reformatting, and DD) that enhance access to and care of the materials, without sacrificing the specialization of activities that yields economies of scale, is essential.

Most critical to success, however, are the nature and structure of the partnerships that support the repositories. The organizational model and financial system adopted to build and sustain a repository has a decided effect on the repository's program and durability. The existing models are prone to produce different kinds of outcomes. The state model creates accountability to the funding authority, the state. The consortium model creates accountability to the community of participating libraries and universities, usually in proportion to the level of their individual financial contribution to, or their equity in, the repository. The proprietary model establishes a landlord-tenant relationship between the operating authority and the depositing library. Of the three models, only the first two—state and consortium—promote coordinated strategic collection management among the full range of participants.

Beyond this there are a range of other factors that promote cooperation.

7.1 History of Cooperative Action or Common Governance

Cooperative collection management is best realized in repositories where the participating institutions have a history of cooperation and strong interinstitutional ties. Organizations such as the Five Colleges of Massachusetts and the libraries of Ohio's CONStor were cooperating in other library-related activities before the repositories were established. There was a longstanding history of cooperation, including coordination of acquisitions and implementation of shared online catalogs and joint licensing arrangements, among the private colleges in both consortia. This interaction is not confined to the libraries but is academy-wide, involving such activities as curriculum sharing and intercampus transportation networks. Through such activities the colleges have established a pattern of interdependence and a high level of trust that support the building of truly cooperative repositories where the merging of collection control and management regimes can flourish.[26]

[26] Significantly, the Five Colleges of Massachusetts and Five Colleges of Ohio consortia were encouraged and supported by The Andrew W. Mellon Foundation, through grants for cooperative cataloging, collection development, and preservation.

The repositories in California and Ohio are bound in a different way, namely, by the common governing authority of the state higher education system. This authority fosters a high degree of interinstitutional cooperation.

In repositories supported by established consortia and state systems there is a pre-existing organizational dynamic that strengthens the aggregated resources of the community as a whole. A strong interinstitutional culture, in short, seems essential to cooperative long-term management of collections.

7.2 Formalization and Transparency

All the repositories involve some measure of cooperation among the depositing libraries. The consortium and proprietary models involve a certain apportionment of the costs of supporting the repository among those libraries. All three models involve a similar allocation of benefits. Since repository endeavors entail sizable capital investments, these costs and benefits need to be formally allocated and documented through contracts, written agreements, bylaws, memoranda of understanding, policies, and similar instruments. Such documents define the specific roles and benefits of the invested parties and thereby distribute risk. Such instruments also promote a clear understanding of the equity that each holds in the shared resource—in this case, the repository collections.

To the extent possible, this "paper infrastructure" should be a matter of record. Because of the interreliance among libraries for collecting and preservation of materials in certain areas and types and for provision of services such as ILL and DD, some outside the consortium might have a stake in the repository's program. The terms and duration of a cooperative agreement covering a repository's last-copy archiving project, for instance, might be of interest for neighboring nonmember libraries in making their own retention decisions. When the terms of a cooperative endeavor are unclear or unknown, the other actors and even the participating parties are deprived of useful knowledge on which to base acquisition or preservation decisions. In the absence of information, all stakeholders operate at a higher level of risk. This risk can be mitigated somewhat by transparency. Certain repositories, notably CONStor, have been diligent about posting their policies and governance documents on the Web.

7.3 Homogeneity of Scale, Type, and Governance

Diversity of membership can be problematic. For example, within the Five Colleges consortium the inclusion of state and private institutions introduces operational complexities. State funding for the University of Massachusetts brings with it constraints on the use of state funds and the disposition of state property that affect the school's ability to harmonize the management and use policies of its own collections with those of other consortium members. For this reason, materials owned by the university may not be merged with

the holdings of the other colleges that are combined and de-duplicated under the repository program.

The funding and governance of the facility have implications for the eligibility of potential participants for use of the facility and terms of the relationship among the participating libraries. State funding, for example, makes other state-funded institutions the most eligible partners. At minimum, it also requires that benefits derived by private universities under the consortium be on a quid pro quo basis and auditable as such. As a general principle in such enterprises, the return of benefits should correspond to the scale of investment by each party.

7.4 Equitable Investment

If chosen with care, the funding model adopted by a repository will promote members' consistent and maximum investment in the common resource. This involves, at minimum, a direct correspondence between each participant's investment and benefit. To promote stability and continuity of the activities, these metrics have to be applied over a sufficiently long term. The ultimate mission of the repository, strategic management of the collective knowledge resources of a community, is not a short-term enterprise.

In calculating the investment and benefits of the participants, it is necessary to factor in collections as a form of equity. The respective contributions of the participating libraries to the shared corpus of materials, even if ownership is not shared, must be recognized and compensated. Libraries that have invested for many years in developing research collections will not always be willing to share the benefits of those collections with newer libraries whose collections are not on the same scale or with smaller libraries.

There are also other forms of equity in the repository to be acknowledged, such as ownership of the repository building or the land on which it is located. The SRLF is situated on the campus of UCLA, one of the depositing universities. Amherst College owns the building in which the Five Colleges repository is located and the land on which it stands.

In CARM Centre and ReCAP, the founding members, as funders of the initial capital costs of the repository facility, have a high level of investment in these endeavors. This would give those institutions a greater stake in the long-term viability of the program.[27]

7.5 High-Level Engagement with the Governing Authority

The level at which the repository "engages" with the universities or other governing authority is important. If the repository is under the purview of library circulation, facilities, preservation, or processing its programs are likely to be driven by operational considerations.

[27] CARM acknowledges this in its fee structure for depositing libraries.

They are also likely to be shaped by, rather than factored into, larger university- or community-wide decisions and strategies. If the program is driven wholly by the individual needs of the participating libraries, the repository will become the product of their only common need: a relatively inexpensive solution to collections storage. If the program is tied to the community's larger collection-development and preservation goals, it can become a powerful tool for strategic management of the community's knowledge resources as a whole.

The creation of California's regional facilities was an integral part of the state's overall strategic plan for libraries. The interests of the larger community are on the side of strengthening the collective research assets available to scholars in the state's higher educational community, in order to attract the highest caliber of teachers and scholars to the state system. The repositories in California, thus engaged, have been the loci for impressive cooperative movement.

The same holds true with regard to the academic community within the university. Most of the repositories studied had built into their governance structures roles at the policy-making level for faculty; others involved faculty on an ad hoc basis in decisions regarding specific collections or materials. Systematic faculty engagement in the decisions and policies of such enterprises, though arduous to sustain, increases the probability that programs will be responsive to the research community.

It is unclear how much attention is paid to the needs of the larger community, that is, the academic community and research libraries community outside the consortium, in shaping the programs of the repositories. Recently, planners at the UC registered the notion of an archival role for repositories within the framework of national scholarly resource preservation:

> The role of the Regional Library Facilities (RLFs) is key in framing the archival role of the UC libraries and the means of achieving it. In discussion, the committee affirmed that the charge to re-examine the archival role should not be construed as suggesting there is no archival role for the UC libraries; rather, it will be important both to reaffirm that role and to articulate it in a concrete and compelling way that is understandable to external constituencies. The importance of attending to various national interests and initiatives (e.g., the Association of Research Libraries, the Association of American Universities, various scholarly societies) and considering organizational perspectives (e.g., the Modern Language Association's position on responsibility for archival retention of primary source records) was emphasized. [28]

Finally, the intervention of funders in repository efforts can foster action at the local level that advances the interests of the greater scholarly community. Prime examples are The Andrew W. Mellon

[28] Notes on the Standing Committee on University-wide Library Collection Management Planning, meeting, February 21, 2001.

Foundation's funding of cooperative storage and collection-management initiatives undertaken by the Five Colleges of Massachusetts and the CONStor group and its support of ReCAP's investigation on cooperative archiving of JSTOR print materials.

7.6 Economic Factors

Once created, repositories are subject to their own economic imperatives. The level of investment in such ventures creates a pressure to exploit the resource to its fullest. In California, the UCOP required from the start that the libraries set quotas for volumes sent each year to their respective repositories before their construction requests would be considered.

Simple economics might also drive cooperation by requiring adherence to common policies and management regimes and by merging key processes and activities in order to achieve economies of scale. The efficiencies of cooperative management of the collections create pressure to strengthen centralization. The State of Ohio's repositories, for instance, do not try to prevent duplication among the collections held at the various facilities. Such action is seen as too costly and not sufficiently beneficial. Impending budget shortfalls, however, may force the state to reconsider this policy. Similarly, the WRLC, pondering its forthcoming funding campaign for a new storage module, expects to revisit the feasibility of a no-duplicates policy.

8. Obstacles and Prospects

The appeal of cooperative repositories is often less compelling for library directors and staff than for university and state administrators. Capital budgets are normally the responsibility of university provosts and state regents. While the effects of overcrowded collections space is felt most acutely by the individual libraries, reconciling the competing needs for capital across the university or system must be done at a higher level. Moreover, the tasks involved in cooperative management of library collections—the selection of materials for storage, their segregation from the on-campus collections, and de-duplication for integration into repository holdings—normally fall to the individual libraries.

In addition, faculty reactions to the impact of removal of materials from campus shelves are normally directed to the library. And, most important for large libraries, the merging of holdings into shared collections can have a negative effect on a library's standing among its peers.

Despite these obstacles, the prospect of regional repository efforts in the United States acting in concert with, and eventually supporting, the national-level repository activities of organizations such as the Library of Congress, the American Antiquarian Society, and the Center for Research Libraries is quite imaginable. If this is to happen, however, the national-level repositories must agree on the

respective domains of library materials for which each of them bears preservation responsibility. The American Antiquarian Society, for example, has assumed responsibility for archiving and preserving U.S. imprints produced before 1877. The LC has expressed its intention to prospectively archive U.S. imprints deposited for copyright, but it has neither committed significant funds to nor specified the details of that effort.

A coordinated effort in the United States effort might benefit from a study of established and emerging cooperative print preservation efforts abroad. These include federal commitments to archive all of a nation's published materials in the NRL effort in Finland and Norway and national print repository efforts in the conceptual stages in Scotland and Great Britain (see Appendixes 6-7).

With the appropriate resources in place, one could imagine the major North American research libraries, regional repositories, and national-level repositories linked in a network that enables strategic management of the important primary resources for scholarship.

APPENDIX 1

Capacities/Occupancies of Repository Storage Facilities

Most of the figures in Appendices 1 through 4 are estimates provided by the contact staff at the repositories surveyed between September and December 2002. The others are taken from the Associated Research Libraries annual academic libraries statistics for 2001. The figures are included to provide a general sense of the scale of repository efforts and, while statistically correct, they do not in all cases represent definitive reports of the repositories or their participating libraries.

Repository	Total Library Collection (volumes)	Capacity (volumes)	Current Count (volumes)	Expandable to	Percentage of Space Currently Occupied
Five Colleges	6.2M	0.5M	0.102M	1M	20
CONStor	3.73M	0.2M	0.021M	0.25M	10.5
SRLF	17.5M	7M	4.5M	9.3M	78
NRLF	15.2M	5.45M	5.45M	18M	100
Duke LSC	5M	2.5M	1.25M	10M	50
ReCAP	21.8M	6.5M	2.7M	35M	26
SWORD	5.22M	2.2M	1.47M	4.8M	67
WRLC	8M	1M	0.89M	3M	90

M: million

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APPENDIX 2

Types of Material Currently Housed in Repository

Repository	Journals	Monographs	Manuscripts/ Archives	Microfilm	Newspapers	Other Special Collections	Realia	Negatives	LP's, Audiotapes	Gov docs
Five Colleges	x	x	x	x						x
CONStor	x	x							x	x
SRLF	x	x	x	x	x	x		x		x
NRLF	x	x	x	x	x	x	x			x
Duke LSC	x	x	x			x				
ReCAP	x	x	x	x	x	x	x	x	x	
WRLC	x	x	x			x	x		x	
SWORD	x	x	x	x	x	x	x		x	x

APPENDIX 3

On-Site Services Provided by Repositories

Repository	ILL/DD (outside consortium)	ILL/DD (within consortium)	Processing	Conservation	Study Facility	Microfilming	Digital Conversion
Five Colleges		x	x		x		
CONStor		x					
SRLF	x	x	x	x	x	x	x
NRLF	x	x	x		x		
Duke LSC	x	x	x		x		
ReCAP		x			x		
SWORD	x	x			x		
WRLC	x	x	x		x		

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APPENDIX 4

Repository Costs and Expenditures

Repository	Construction Cost (year)	Cost/ Volume/ ann[29]	Operating Cost/ann	FTE Staff
Five Colleges	$3M (1992–2001)	$1.61	$165,000	3
CONStor	N/A	$2.38	$50,000	1.5
SRLF	$27M (1987-96)	$0.26	$1,200,000	38.2
NRLF	$17.2M (1982-90)	$0.17	$900,000	21.5
Duke LSC	$7M (2000)	$0.33	$414,000	8
ReCAP	$24M (2001)	$0.79	$1,700,000	25
SWORD	$4.93M (1995-2000)	$0.31	$456,000	7.5
WRLC	$5M (1993)	$0.39	$350,000	5

[29] The estimated annual cost per volume is based on a simple formula that divides the most recent annual operating cost of the facility, exclusive of depreciation and debt retirement, by the current number of volumes stored. This can be misleading for a number of reasons. Annual operating costs vary with the stages in the facility's life cycle, the type of volumes loaded, and the kind and number of services provided to consortium members. This figure is provided only to give a broad sense of the range of costs of facility operation.

APPENDIX 5

Australian National Collections Storage Program

In December 2002, the federal government of Australia agreed to fund a package of national information infrastructure initiatives proposed by the Department of Education, Science and Training's (DEST) Information Infrastructure Advisory Committee (IIAC) as part of its Research Information Infrastructure Framework for Australian Higher Education. The package included AUS$4 million to establish a collaborative storage facility to serve the nation's universities. The facility is to be used for storage of low-use research material.

In its proposal, the committee cited the pressures of journal collection growth and the success of the CAVAL repository effort, saying:

> The acquisition of digital publications provides opportunities for some print materials, especially journals, to be relegated to storage. Collaborative storage facilities have already proven their efficiency in South Australia and Victoria but further capacity is required to allow more extensive relegation and the better use of resources. (IIAC 2002, 21)

DEST will seek expressions of interest from universities and their partners for the coordination of the project over a 24-month period beginning June 2003.

The Council of Australian University Librarians supported the proposal for collaborative storage facilities not just as a source of inexpensive storage but "as a strategic means of improving the management of the national research collection and of assisting participating universities to redevelop space for other purposes such as information/learning commons." One of the aims cited for establishing the facility was to "rationalise the library holdings, especially where digital copies are available, of university libraries."

Under the program, all capital and initial establishment costs will be covered by the government's Systemic Infrastructure Initiative. Ongoing operations of the facility, however, are intended to be supported by the participating institutions, which will be required to make a five-year commitment to the effort. Stakeholders will be required to agree to abide by a set of protocols, two of which are particularly reflective of Australia's desire to integrate the storage initiative in the overall collection development and management program of the community. Those protocols are as follows:

- implementation of collection rationalization among existing libraries and library stores; and
- adoption of a concept of "virtual" national storage as well as physical facilities.

The latter includes abiding by stringent guidelines for cooperative collecting and nonredundancy, such as a prohibition against storing items in the national store that another institution, such as the National Library of Australia, has a mandate to acquire and make available.

APPENDIX 6

National Print Collections Planning: United Kingdom

There is a movement afoot in the United Kingdom (U.K.) to explore creation of a national repository network linking the British Library and British university libraries. This movement is encouraged by the increasing tendency between national-level library and cultural heritage thinkers to promote the sharing of the country's knowledge resources and to think of the holdings of the various UK libraries as an "aggregate national collection."

The Higher Education/British Library (HE/BL) Task Force was formed by the Research Support Libraries Group (RSLG) in September 1999. Its purpose is to identify areas for future collaboration between the British Library and higher education, among them collaboration on collections management and storage.[30] The planners acknowledged a mutual interest in "ensuring more effective and efficient overall provision in the context of a distributed national collection of research resources." They aimed to address a number of high-level trends in British higher education that had been identified by the 1993 Follett Report, namely, the dramatic growth in student enrollments, rapid inflation in the price of printed material, and the "added opportunities, but consequent costs, of information technology." The report also cited the inequity among British universities with respect to their capacity to support research and attract research funding.[31]

It was of the opinion that, rather than dealing with the problem institution by institution, the issue needed to be addressed through strategic coordination "within and beyond the higher education system."

One of the studies commissioned by the task force dealt with the collaborative storage of library resources. The report of the study, issued in June 2001, identified a number of obstacles that might im-

[30] The Research Support Libraries Group was an ad hoc committee established in 2001 by the four U.K. higher education funding councils, the British Library, and the national libraries of Scotland and Wales to "make recommendations for a UK wide strategic framework and co-ordinated delivery mechanisms for research information provision." Members were drawn from the senior ranks of the library profession and academic and research community. Sir Brian Follett chaired the group.

[31] *Joint Funding Councils' Libraries Review Group: Report.* 1993. Prepared for the Higher Education Funding Council for England, Scottish Higher Education Funding Council, Higher Education Funding Council for Wales, and Department of Education for Northern Ireland. Available at http://www.ukoln.ac.uk/services/papers/follett/report/.

pede the success of a national collections storage program.[32] It cited a "clear lack of research into the extent of collection overlap or gap analysis in or between institutional repositories" and questioned the efficacy of a cooperative solution for storage that is not linked to rationalization of holdings among libraries participating in those facilities. Second, it cited the "the 'personalities' of the institutional players who retain collection size as an important performance indicator." The report noted that the large extant repositories tended to be products of single large universities or regional consortia, and that they might not be adaptable on a national scale, for which there exist no "business models."

The task force's recommendations were quite general. They underscored the "necessity of building a framework for future sustainable and effective collaboration" between the British Library and the university libraries and among the latter, but left the specific programs to be pursued up to the RSLG.

The RSLG was subsequently asked to devise for the Higher Education Funding Councils and its other sponsors strategies for promoting collaboration in the development and provision of library collections, their long-term management, and services to support research, based upon the HE/BL task force findings (RSLG 2003).

The RSLG's report, issued in January 2003, concluded that the U.K. should create a new body to lead and coordinate the provision of research information, among whose priorities for action will be "promoting and facilitating collaborative collection development for print collections efforts . . . and undertaking a cost-benefit study of collaborative retention, including 'managed disposals,' of library print materials" (RSLG 2003, paragraphs 135-141). The RSLG endorsed "action to improve understanding of the economics of retention and disposal of rarely used printed material; and further collaborative action, based on that, to rationalize holdings where this is found to be justified." This work is to be delegated to the newly established Research Libraries Network.

These recommendations, however tentative, suggest that the U.K. higher education and library communities will continue to explore national-level strategies on collection management and storage.

[32] The final report of the group, issued in June 2001 and entitled *Report from the Higher Education/British Library Task Force to the Research Support Libraries Group*, is available at http://www.bl.uk/concord/pdf_files/blhe-overview.pdf.

APPENDIX 7

A Collaborative Academic Library Store for Scotland (CASS)

The RSLG report refers to the efforts of U.S. libraries to develop collaborative storage and to a feasibility study for collaborative storage under way in Scotland as possible models. The Scottish effort has moved beyond the conceptual stage. In 2001, the Scottish Confederation of University and Research Libraries (SCURL) received funding from the Carnegie Trust for the Universities of Scotland to undertake a six-month study to "determine the optimal model for a collaborative storage and delivery service" for valuable but low-use research materials held in Scottish university libraries. Establishment of a collaborative storage facility for Scottish universities had been discussed since the 1960s. Key deliverables of the report included the wide dissemination of project findings in the form of a final report and a detailed business plan for a collaborative facility.

The report of the study, by Catherine M. Nicholson and Sharron Brown, was issued in June 2002.[33] The authors recommended creation of a national cooperative storage facility and provided the general outline of a consortium-based business model to support it. SCURL has accepted their recommendations, although some issues still require discussion.

The repository will provide ILL and DD service by fax and through Ariel. Materials from the repository, whether or not owned by individual libraries, will be loaned to CASS members. The idea of lending to libraries outside the consortium on a fee basis was embraced as a source of possible revenue, although it was not part of the mission of CASS and therefore not a priority. The facility may also include a bindery, microfilming unit, conservation center, and joint records management facility.

The model agreed to is one of a "de-duplicated, jointly owned collection to be managed by a body representing the stakeholders." The policies and economic model proposed are similar to those of the CAVAL model.

Governance. The facility will be owned and managed by a newly formed consortium with independent legal status and made up of participating libraries drawn from SCURL's membership, other stakeholders, and the store manager and staff.

Economic Model. The aim is to finance the CASS by applying to the Scottish Higher Education Funding Council for start-up funding

[33] See the project documents for the Cooperative Academic Store for Scotland at http://scurl.ac.uk/projects/cass/index.html.

to cover capital and initial recurrent costs and to meet ongoing recurrent costs through a financial model that aims to spread the costs equitably between members, encourage maximum participation, and ensure sustainability in the light of future change. SHEFC will pay 50 percent of the set-up costs, and the participating institutions will pay the rest.

Ongoing operating costs will be paid through membership or capital "subscription" funds from participating institutions based on each institution's proposed storage usage level. Non-capital contributors who are SCURL members will be able to add material to the collection at a per-volume rate set by the management committee. If the store holds material that the donating library is unable to cede ownership on, they may store it within the standard subscription costs if the owning institution commits to its long-term deposit.

The plan calls for incentives to promote membership, and hence long-term investment in the endeavor, and to curb redundancy among the repository collections. For instance, when a library donates a second copy, the library that is unable to cede ownership must either take the item back or pay for its continued storage at prevailing rates.

Two of the issues that remain subject to further discussion are ownership and de-duplication. Ownership of material was a politically sensitive issue; however, with the exception of Aberdeen and Glasgow Caledonian Universities, all libraries expressed a willingness to cede ownership to a jointly owned collection, subject to legal compliance, terms of bequests, and similar conditions. Joint ownership would not be possible for any archives, non-current records, or material from the National Library of Scotland.

General agreement on de-duplication was that while a single-copy model would be the most cost-effective, it might be more prudent to retain two copies. It was decided that care would have to be exercised in the first few years of operation. Any decisions in respect to last copies are to be made in consultation with the National Library of Scotland.

APPENDIX 8

Methodology and Sources

The survey for this study was conducted by Barbara DesRosiers and Bernard F. Reilly between October 1, 2002, and January 31, 2003. The survey authors visited the following sites:

- ReCAP, Princeton, NJ
- Southern Regional Library Facility, Los Angeles, CA
- Northern Regional Library Facility, Richmond, CA
- CONStor, Newark, OH
- Five-College Library Depository, Amherst, MA
- Library Service Center at Duke University, Durham, NC
- American Antiquarian Society, Worcester, MA
- Library of Congress, Washington, DC
- Washington Research Library Center, Upper Marlboro, MD

Two sites were not visited, but information was compiled through phone interviews and email correspondence. These were

- Ohio State University Book Depository, Columbus, OH
- The Southwest Regional Depository, Middletown, OH

Barbara DesRosiers developed the survey questionnaire, which covered basic information about costs to build and operate the facility, staffing levels, environmental conditions, and types of material stored. The questions also addressed a wider range of issues, including

- impetus for building the facility
- criteria for selection and retention at the facility
- policies on ownership of material
- policies on access to material
- resistance to the facility from users
- technological infrastructure supporting operations at the facility
- other uses of the facility besides storage
- funding sources of the facility
- governance and administration of the facility
- history of relationships among the institutions participating in the facility
- arrangements, agreements, and contracts among the participants
- future plans of the facility

A modified version of the questionnaire was used for the visit to the American Antiquarian Society. This version did not include questions about relationships with other participants, but did ask about relationships with donors and contributors. It also asked about ben-

efits to the society from their association with the National Endowment for the Humanities Newspaper Depository Program and about the role AAS might play in a national print preservation agenda and how that agenda might be funded.

One or more operations managers took part in each site visit. On-site staff decided whether other administrative or operations staff would attend. Each site visit included a tour of the shelving or storage facility. Time was also spent discussing the operations and administration of the facility. Some information included was beyond the scope of the questionnaire, especially when it had bearing on the current operation and future of the facility.

After the site visit or initial phone interview, additional phone calls were made to some of the contacts to clarify or complete information gathered during the initial contact.

The following individuals participated in the site visits or phone interviews:

American Antiquarian Society

- Georgia Barnhill, Andrew W. Mellon Curator for Graphic Arts
- Nancy Burkett, Marcus A. McCorison Librarian and Head of Acquisitions
- Alan Degutis, Head of Cataloging Services
- *Ellen Dunlap, President
- Babette Gehnrich, Chief Conservator
- Vince Golden, Curator of Newspapers and Periodicals
- Ed Harris, Jr., Vice President for Administration
- John Hench, Vice President for Collections and Programs
- John Keenum, Vice President for Development
- Tom Knoles, Curator of Manuscripts
- Marie Lamoureux, Head of Readers' Service

CONStor

- Chris Barth, Director of Information Resources, Kenyon College
- Theresa Byrd, Director of Libraries, Ohio Wesleyan University
- Lynn Scott "Scottie" Cochran, Director of Libraries, Denison University
- Janet Cottrell, Director of Information Access, Kenyon College
- *Margo Warner Curl, Coordinator of Cooperative Collection Development, CONStorColleges
- Ray English, Director of Libraries, Oberlin College
- Damon Hickey, Director of Libraries, The College of Wooster
- Susan Palmer, Executive Director, Five-Colleges of Ohio
- Michael Upfold, Library Systems Manager

Five Colleges, Inc.

- *Will Bridegam, Director, Amherst College Library
- David Spoolstra, Project Manager, Five-College Library Depository

Library of Congress

- *Nancy Davenport, Director of Acquisitions
- Mark Roosa, Director of Preservation

LSC
- * Thomas Wall, Director of Public Services, Duke University Library
- David Ferriero, University Librarian, Duke University

NRLF
- *Bernie Hurley, Director of NRLF and Director of Libraries Technology, UC Berkeley
- Karen Butter, Chair, Northern Regional Library Board
- Scott Miller, Operations Manager, NRLF
- Jackie Wilson, Senior Associate, California Digital Library

OSU
- *Pat McCandless, Associate Director for Public Services

ReCAP
- *Eileen Henthorne, Executive Director, ReCAP
- William Walker, The Research Libraries, New York Public Library
- Michael Zavelle, Vice President for Administration, New York Public Libraries

SRLF
- Claire Bellanti, Director, SRLF
- Colleen Carlton, Operations Manager, SRLF
- *Cecily Johns, Project Director for Collection Management, CDL
- Cindy Shelton, Associate University Librarian for Collections and Technical Services, UCLA

SWORD
- *Sue Berry, Depository Manager

University of California
- Daniel Greenstein, Executive Director, California Digital Library and University Librarian for System-wide Library Planning and Scholarly Information, Office of the President
- *Gary S. Lawrence, Director, Library Planning and Policy Development, Office of the President

WRLC
- *Lizanne Payne, Executive Director

* Indicates the primary contact at each site.

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